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Maryland State College

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1856-1916

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of Agriculture
College Park, Md.

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MARYLAND STATE COLLEGE

OF AGRICULTURE

COLLEGE PARK, MARYLAND

1856 1916

CATALOGUE

1916-1917

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COLLEGE PARK, MARYLAND

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CATALOGUE

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(ORGANIZED 1896.)

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STATE HORTICULTURAL DEPARTMENT.

(ORGANIZED 1898.)

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Botany, Vegetable Pathology.

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S. B. SHAW, B. S.,
Pomology.

J. R. CHRISTIE, B. S.,
Entomology.

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Inspector.

ANNA E. F. McCARTHY,
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(ORGANIZED 1914.)

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G. H. ALFORD, County Demonstration Work.
G. E. WOLCOTT, Dairy Husbandry.
C. E. TEMPLE, Plant Pathology.
S. B. SHAW, Pomology.
*C. L. OPPERMAN, Poultry Husbandry.
KATHARINE A. PRITCHETT, Home Economics.
REUBEN BRIGHAM, Boys' Club Work.
FLORENCE J. HUNT, Home Economics.
KATHLEEN C. CALKINS, Home Economics.

---

*Part time.

*F. B. BOMBERGER, Rural Organization.
*C. S. RICHARDSON, Rural Organization.
*H. T. HARRISON, Farm Accounts.
*T. H. TALIAFERRO, Rural Engineering.
*HARRY GWINNER, Farm Mechanics.
*MYRON CREESE, Electric Light and Power.
*W. M. HILLEGEIST, Correspondence Courses.

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Dorchester	To be appointed.
Frederick	To be appointed.
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Kent	HELEN COMSTOCK, Chestertown.
Prince George	LILLIAN HENNAMAN, Upper Marlboro.
Talbot	OLIVE K. WALLS, Easton.

LECTURERS, 1915-1916.

In addition to the special lecturers, members of the College faculty lectured during the courses on Domestic Science, Soils, Crops, Farm Live Stock and Dairying, Poultry, Horticulture, Farm Mechanics and Good Roads.

SHORT WINTER COURSES.

ALLEN, H. H., State Roads Commission, Baltimore, Md.
ALLEN, R. S., Animal Husbandman, Maryland Experiment Station.
APPLEMAN, C. O., Physiologist, Maryland Experiment Station.
BALLARD, W. R., Pomologist, Maryland Experiment Station.
BELL, G. A., Animal Husbandman, U. S. Department of Agriculture.
BRIGHAM, A. A., Commercial Poultryman, Brinklow, Md.
BRIGHAM, REUBEN, Sheep Husbandman, Maryland Experiment Station.
BRINKLEY, E. H., Farm Superintendent, Maryland Experiment Station.
BROOKS, T. ROY, Farmer, Emmorton, Md.
BUTLER, S. F., American Association Cement Manufacturers, Philadelphia, Pa.

*Part time.

CHILDS, W. F., JR., Maryland State Roads Commission, Baltimore, Md.
CLARK, H. M., Roads Engineer, Wicomico County, Md.
CLOSE, C. P., Horticulturist, U. S. Department of Agriculture.
COMSTOCK, HELEN, County Agent, Chestertown, Md.
CROSBY, W. W., Consulting Engineer, Baltimore, Md.
FEATHERSTONE, H. J., Automobile Engineering College, Washington, D. C.
HARRISON, E. P., Maryland State Roads Commission, Baltimore, Md.
HAYMAN, E. T., Roads Engineer, Anne Arundel County, Md.
HOLMES, F. S., Stone Fruits, Maryland Experiment Station.
HUBBARD, P., U. S. Office of Public Roads and Rural Engineering.
HUNT, FLORENCE J., Home Economics Department, College Park, Md.
KNIGHT, M. D., Roads Superintendent, Montgomery County, Md.
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MACKALL, J. N., Maryland State Roads Commission, Baltimore, Md.
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MULFORD, F. L., Floriculturist, U. S. Department of Agriculture.
OWENS, R. W., Maryland State Roads Commission, Baltimore, Md.
PRITCHETT, KATHARINE A., Home Economics Department, College Park, Md.
SCHNEPFE, F. E., Roads Engineer, Queen Anne's County, Md.
SCHMITZ, NICKOLAS, Agronomist, Maryland Experiment Station.
SHAW, S. B., Pomologist, State Horticultural Department, College Park, Md.
SLOCUM, ROBERT L., Poultry Specialist, U. S. Department of Agriculture.
SMITH, C. P., Seed Inspector, Maryland Experiment Station.
SQUIRES, J. H., E. I. Dupont de Nemours & Co., Wilmington, Del.
SUCRO, W. G., Roads Engineer, Baltimore County, Md.
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THOMPSON, H. C., Horticulturist, U. S. Department of Agriculture.
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VEITCH, F. P., Lime Specialist, U. S. Department of Agriculture.
VOSHELL, J. T., U. S. Office of Public Roads and Rural Engineering.
WAITE, ROY H., Poultryman, Maryland Experiment Station.
WALDORF, H., Roads Engineer, Caroline County, Md.
WHITE, T. H., Vegetable Culturist, Maryland Experiment Station.
WINSLOW, D. H., U. S. Office of Public Roads and Rural Engineering.
WOLCOTT, G. E., Dairy Specialist, Maryland Experiment Station.
WOLSIEFFER, J. HARRY, Poultry Judge and Editor, Vineland, N. J.

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COLLIER, W. OSCAR, Easton, Md.
HARRY, D. G., Pylesville, Md.
HILL, RICHARD S., Director, College Park, Md.
HUDSON, J. F., Towson, Md.
JOHNSON, T. C., Norfolk, Va.
LOVE, GEORGE W., ————————, Ohio.
MARSH, G. F., Elkton, Md.
MONROE, JOHN F., Snow Hill, Md.
OSWALD, E. I., Chewsville, Md.
REESE, LINDSEY, Urbana, Ill.
SAPP, C. H., ————————, Ohio.

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(The President is an Ex-officio Member of All Committees.)

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CATALOGUE Messrs. T. H. Taliaferro, Spence, Metzger, Broughton, and Cory.

COURSES OF STUDY: Messrs. McDonnell, Spence, W. T. L. Taliaferro, Bomberger, Symons, T. H. Taliaferro, and Metzger.

DISCIPLINE: Messrs. Spence, McDonnell, T. H. Taliaferro, Harrison, and Broughton.

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PUBLICITY: Messrs. Brigham, Richardson, Symons, and Metzger.

SANITATION: Messrs. Griffith, McDonnell, W. T. L. Taliaferro, Buckley, and T. H. Taliaferro.

SCHEDULE: Messrs. Creese, McDonnell, Harrison, Cory, and Gwinner.

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STUDENT ENROLLMENT, RECORDS, CLASS AND QUARTER ASSIGN-
GLEE CLUB, DRAMATIC ASSOCIATION: Messrs. Richardson, Creese, Darrow, Bruce, and W. T. L. Taliaferro.

STUDENT PUBLICATIONS: Messrs. Richardson, Metzger, Bomberger, and Cory.

STUDENT RELATIONS: Messrs. Bomberger, Darrow, Richardson, Symons, and Ruffner.

SUMMER SCHOOL: Messrs. Metzger, Bomberger, Crisp, Beckenstrater, and Darrow.

CALENDAR.

FIRST TERM.

Tuesday, September 12th, and Wednesday, September 13th.—Entrance Examinations.
Thursday, September 14th, 1 P. M.—College Work Begins.
Thursday, November 30th.—Thanksgiving Recess.
Friday, December 22nd, 12 M.—First Term Ends.
Friday, December 22nd, 12 M., to Wednesday, January 3rd, 8 A. M.—Christmas Recess.

SECOND TERM.

Wednesday, January 3rd, 8 A. M.—Second Term Begins.
Wednesday, January 3rd.—Special Winter Courses Begin.
Thursday, February 1st.—Filing Subjects of Theses.
Saturday, March 17th.—Second Term and Special Winter Courses End.

THIRD TERM.

Monday, March 19th.—Third Term Begins.
Wednesday, April 4th, Noon, to Wednesday, April 11th, 8 A. M.—Easter Recess.
Tuesday, May 15th.—Submitting of Theses.
Friday, June 1st.—Final Meeting of Trustees.
Sunday, June 3rd.—Baccalaureate Sermon.
Monday, June 4th.—Class Day.
Tuesday, June 5th.—Alumni Day.
Wednesday, June 6th, 11 A. M.—Graduation Day Exercises.
Friday, June 8th.—Examinations for Promotion Begin.
Friday, June 15th.—Examinations for Promotion End.

1916

JULY

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AUGUST

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OCTOBER

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DECEMBER

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1917

JANUARY

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FEBRUARY

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MARCH

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APRIL

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MAY

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JUNE

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MARYLAND STATE COLLEGE OF AGRICULTURE

HISTORY

"An act to establish and endow an agricultural college in the State of Maryland" was passed by the Legislature of the State in 1856, and is found in Chapter 97 of the Laws of Maryland for that year. The scope of this act of incorporation is shown by the preamble, which reads as follows:

> WHEREAS, It has been represented to the Legislature, that certain wise and virtuous citizens are desirous of instituting and establishing in some convenient locality within this State, an Agricultural College and Model Farm, in which the youthful student may especially be instructed in those arts and sciences indispensable to successful agricultural pursuits; and
>
> WHEREAS, It doth appear to this Legislature, that while the wise and learned in the present age hath cultivated with laudable industry, and applied with admirable success the arts and sciences to other pursuits, the most necessary, useful and honorable pursuits of agriculturists have so far been lamentably neglected; and
>
> WHEREAS, It is the province and duty of the Legislature to encourage and aid the philanthropic citizens in their efforts to disseminate useful knowledge by establishing an Agricultural College and Model Farm, which shall, in addition to the usual course of scholastic training, particularly indoctrinate the youth of Maryland. theoretically and practically, in those arts and sciences, which with good manners and morals, shall enable them to subdue the earth and elevate the State to the lofty position its advantages in soil, climate, etc., and the moral and mental capacities of its citizens, entitle it to attain.

This was the first effort in the Western Hemisphere to use scientific investigation for the advancement of the vocation of Agriculture, since at that time no other institution of a similar character existed in the United States. Under the charter thus granted to a party of public-spirited individuals, the original College building was erected, and its doors were opened to students in the fall of 1859.

For three years it was conducted as a private institution. In 1862, the Congress of the United States, recognizing the valuable work in the cause of practical education which such colleges could achieve for the country passed the "Land Grant Act." This Act granted each State and Territory which should claim its benefit a proportionate amount of unclaimed Western lands, in place of scrip, the proceeds from the sale of which should apply under

certain conditions to the "**endowment, support and maintenance of at least one college where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the legislatures of the States may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life.**" This grant having been formally accepted by the General Assembly of Maryland, and the Maryland Agricultural College being named as the beneficiary of the grant, the College thus became, in part, at least, a State institution. In the Fall of 1914, the College became, wholly, a State institution.

During recent years the College has made a steady growth. This fact is evidenced by the increased number of students availing themselves of its facilities; by the erection of many new buildings—the library and gymnasium building, the chemical laboratory, Morrill Hall, the sanitarium, the engineering building, and Calvert Hall; as well as by the establishment of the Departments of Farmers' Institutes and Extension Work, and the State Departments of Chemistry (Fertilizer, Feed and Agricultural Lime Control), Horticulture, Entomology and Vegetable Pathology. As a consequence of its development under such favorable auspices the institution has become the most important factor in the agricultural and industrial development of the State.

The State Bureau of Forestry co-operates with the College, the Director being, by the terms of his appointment, Lecturer on Forestry at the College.

In 1916 the General Assembly granted a new charter to the College and changed its name from "The Maryland Agricultural College" to "The Maryland State College of Agriculture."

LOCATION AND DESCRIPTION.

The College is located in Prince George's county, Maryland, on the line of the Washington Branch of the B. & O. R. R. eight miles from Washington, and thirty-two miles from Baltimore. At least nine trains a day from each city stop at College Station, thus making the place easily accessible from all parts of the State. Telephone connection is made with the Chesapeake and Potomac lines.

The College grounds front on the Baltimore and Washington Boulevard. The suburban town of Hyattsville is two miles to the south, and Laurel, the largest town in the county, is ten miles to the north on the same road. Access to these towns and to Washington may be had by steam and electric railway. The site of the College is particularly beautiful. The buildings occupy the crest of a commanding hill, which is covered with forest trees, and overlooks the entire surrounding country. In front, extending to the Boulevard, is a broad, rolling campus, the drill ground and athletic field of the students. In the rear are the farm buildings and barn. A quarter of a mile to the northeast are the buildings of the Experiment Station. The College farm contains about three hundred acres, and is devoted to fields, gardens, orchards, vineyard, poultry yards, etc., used for experimental purposes and demonstration work in agriculture and horticulture.

The general appearance of the College grounds is exceedingly attractive. They are tastefully laid off in lawns and terraces which are ornamented with shrubbery and flower beds. The view from the grove and campus cannot be surpassed.

The location of the College is healthful; the sanitary conditions are excellent. No better proof of this can be given than that there has been practically no serious case of illness among the students for many years.

COLLEGE BUILDINGS.

The original College building completed in 1859, and the administration building completed in 1904, and connected with the former by a covered bridge, were completely destroyed by fire on the night of November 29, 1912. A temporary assembly hall, kitchen and dining hall have been erected and are now in use. Living rooms for a part of the students are available in Calvert Hall, the dormitory constructed in 1914, and in several houses on the College campus.

In 1894 the building used as the library was erected. It is well-lighted and commodious.

The Departments of Civil, Electrical and Mechanical Engineering and the Departments of Physics and of Mathematics are located in the two-story brick building erected in 1896, the brick annex,

erected in 1904, and the brick addition constructed in 1909. This latter, which consists of a main building four stories in height and a wing three stories in height, is so arranged as to form with the buildings previously erected a concrete whole. In this group of buildings are found laboratories of various kinds, wood and machine shops, a forge room and foundry, drawing rooms, blue print rooms, instrument rooms, lecture rooms, offices, a library room, lavatories, lockers, etc. The equipment is modern in every respect and the facilities for work in the above named departments have been greatly increased.

The chemical building was completed in 1897, and is now thoroughly equipped. It contains several lecture rooms and laboratories for practical work and the analysis of fertilizers, feeding materials for domestic animals, and agricultural lime. This work is assigned by Acts of the General Assembly to the Professor of Chemistry at this College, who is thereby constituted State Chemist.

Morrill Hall, erected in 1898, provides laboratories, lecture and class rooms, a dark room and storage rooms for the Agricultural and Biological Departments. The extensive insect collections of past and present State Entomologists, and the State Herbarium are housed in this building. The Departments of Entomology and Botany have a small greenhouse attached to Morrill Hall for use as an insectary and propagating house. In addition, several class rooms and offices are used by the Departments of Economics, English, Agricultural Education and Languages.

The Horticultural Building completed in 1915 provides class rooms, propagating shed and offices, opening into a range of nine greenhouses and a conservatory abutting on the south wall of the building. The main building is 200 feet long, and the adjoining greenhouses 50 feet by 20 feet each. This equipment furnishes ample accommodations for laboratory work in horticulture and is comparable to the best in the country.

The College Sanitarium, completed in 1901, is being used, temporarily, as the Administration Building.

GENERAL AIM AND PURPOSE.

The College is the State school of science and technology. While seeking, first of all, to perform the functions of an

agricultural college, its sphere of work has been widened to embrace all the sciences akin to agriculture, and all the arts related to mechanical training. To these special and prominent lines of work have been added such branches of study as are necessary for a liberal education, for the development of the intelligent citizen and for general culture. The purpose of this college is to give young men anxious to prepare themselves for the active duties of life such training in the lecture room, laboratory and field as will enable them to take their places in the industrial world well prepared for the fierce competition of the day.

Recognizing that such an education, in order to be of practical advantage to many, must be offered at a cost within the means of all, the expenses for the year to the student have been reduced to the point where his college dues are not in excess of his ordinary daily expenses. It is to be remembered that the College is a State institution, in part supported by the State, in part by the Federal Government through its several endowment Acts, and that it is in no sense a money-making institution, but simply a medium of disbursement by the Government to those upon whom the safety, progress and prosperity of the State so largely depend.

While the College provides, as will hereafter be explained, several distinct courses of instruction, looking to the special training of the student in agriculture, engineering and science, the fact is clearly kept in view that a sound foundation must be laid for each and every course. Successful specialization is only practicable after the student has prepared for it by a thorough training in the essentials. All education must be narrow and one-sided which does not provide for the general culture of the student, and which does not look first to the natural and normal development of the individual. That the aim of the College is to train the student in a specialty without sacrificing his development in general culture is shown in the description of the general working plan given in the next paragraph.

It begins with the student in the first or Freshman year with a systematic and carefully adjusted scheme of work, differing but little in the several courses, and looking to his general development in mental strength, range of information and power of expression and thought. At the beginning of the second or Sophomore year

the differentiation may be said to begin along those lines for which he shows most natural aptitude. This gradual specialization continues during the third or Junior year, until in the last or Senior year, his work consists chiefly of a few closely correlated topics, in which he is thus able thoroughly to prepare himself. With the present equipment of the laboratories and work-shops a student is able to become so proficient in his chosen line of work that when he leaves the College a successful career is open to him.

The Maryland State College of Agriculture is, logically, the crowning point of the public school system of Maryland. Its aim in particular is to provide a higher education for the graduates of the county high schools. To this end its curriculum is adjusted to meet the preparation of such students. It is this class of young men that the College is specially desirous of reaching. Experience has shown that our most satisfactory students come as graduates from the county schools, and no efforts will be spared to make the transition from the high school to the College a possible one for all those actuated by an earnest desire to complete their education.

DEPARTMENTS OF THE COLLEGE.

AGRICULTURE—
  AGRICULTURAL EDUCATION.
  AGRONOMY.
  ANIMAL HUSBANDRY.
BOTANY AND VEGETABLE PATHOLOGY.
CHEMISTRY AND BACTERIOLOGY.
CIVIL ENGINEERING.
ECONOMICS, POLITICAL SCIENCE AND HISTORY.
ELECTRICAL ENGINEERING AND PHYSICS.
ENGLISH AND PUBLIC SPEAKING.
ENTOMOLOGY AND ZOOLOGY.
HORTICULTURE—
  POMOLOGY.
  VEGETABLE CULTURE.
  LANDSCAPE GARDENING AND FLORICULTURE.
  FORESTRY.
LANGUAGES.
MATHEMATICS.
MECHANICAL ENGINEERING.
MILITARY SCIENCE.
PHYSICAL CULTURE.
SUB-COLLEGIATE INSTRUCTION.
VETERINARY SCIENCE.

The following pages give, under the several departments, the general character of the courses offered by each, and the main features of their equipment.

AGRICULTURAL EDUCATION.

PROFESSOR METZGER.

The work of this Department is designed to meet the demand for men, trained in agricultural and manual arts subjects, to teach in the high schools of the State.

In the arrangement of the courses the needs of the agricultural and manual arts teacher have been kept in mind. The work how-

ever, is open to any who desire an insight into the educational principles and problems of teaching vocational subjects.

The practice teaching is arranged to give the students of this Department experience in conducting class work and laboratory and field exercises. In addition, arrangement is made whereby the student receives both instruction and experience in the teaching and supervision of elementary industrial work in secondary schools.

COURSES OFFERED.

1. PSYCHOLOGY. Principles of psychology. Lectures and text-book.

Text used: Angell's "Psychology."

Junior Year—First Term, 4 theoretical and 2 practical periods per week.

2. HISTORY OF EDUCATION. Outline of the historical development of modern education.

Text used: Monroe's "Brief Course in the History of Education."

Junior Year—Second Term, 4 theoretical periods per week.

3. PRINCIPLES OF EDUCATION. Study of the principles and methods of modern education.

Text used: Bagley's "The Educative Process."

Junior Year—Third Term, 4 theoretical periods per week.

4. SECONDARY SCHOOL AGRICULTURE AND MANUAL TRAINING. The purpose of this course is the preparation of the student for the teaching of agricultural or manual training subjects through a knowledge of the educational aims, and of the principles applying to the choice of subject matter. The course involves a study of the recitation in its parts, the methods of conducting and the function of laboratory, shop, and field exercises, and the correlation of these with other subjects.

Senior Year—First Term, 3 theoretical and 2 practical periods per week.

5. ORGANIZATION AND MATERIALS. A course in the organization of courses of study, demonstration projects, and the selection of materials for the work in agriculture and manual training in secondary and elementary schools. This course is designed to ac-

quaint the student with the materials and equipment necessary for the successful teaching of secondary school sciences and arts, scope of work, order of presentation and the sources of supplies and equipment for recitation and laboratory work. The function and the use of school land and of home demonstration work are considered.

Senior Year—Second Term, 3 theoretical and 2 practical periods per week.

6. RURAL ORGANIZATION. A course in which the aims, the functions, the methods of organization, and the relation of rural to city institutions are considered.

Senior Year—Third Term, 3 theoretical and 2 practical periods per week.

7. RESEARCH AND THESIS. The subject and lines of work to be arranged with the head of the Department. The purpose of the thesis is to study special problems in agricultural education.

Senior Year—Second and Third Term, 2 practical periods per week.

8. RURAL ORGANIZATION. Methods of organization in rural communities and similar problems are considered in this course.

Second Year—Third Term, 2 theoretical periods per week.

AGRONOMY.

PROFESSOR TALIAFERRO.
PROFESSOR METZGER.
MR. BRUCE.

The Department of Agronomy takes up the agricultural work pertaining to the field and its crops. A number of courses are offered. These treat of farm crops, their classification, soil and climatic adaptations, culture and improvement; soils, their physical and chemical properties, methods of treatment for maintenance and increase of productiveness; soil amendments, as manures, fertilizers, cover crops and lime; farm drainage; and farm management.

The College farm consists of two hundred and sixty-five acres of land and is operated by the Maryland Agricultural Experiment Station together with an adjoining leased farm.

Students of the College are kept in close touch with the general and experimental work on these farms which offer an unusual variety of soils and crops for observation and study.

Many of the students, who wish to do so, find work at fair wages on the farm and are thereby enabled to pay a part of their expenses as well as to gain valuable experience.

Well-equipped soil and crop laboratories, and a greenhouse devoted to the use of the Agronomy Department afford exceptional opportunities for the accurate study, at all seasons, of the scientific principles involved in the handling of soils and the production of farm crops.

COURSES OFFERED.

20. FARM CROPS. A systematic study of the forage and cover crops of the United States, with special emphasis as to Maryland conditions, distribution, classification, economic importance, and cultural methods.

Freshman and Junior Year—Third Term, 3 theoretical and 2 practical periods per week.

21. FARM CROPS. A detailed study of the cereal crops, including their history, distribution, adaptation, cultivation, harvesting, and marketing. Special attention is given to corn production.

Sophomore Year—First Term, 2 theoretical and 2 practical periods per week.

22. SOILS. A course dealing with the origin, classification, and the physical and chemical properties of soils in their relation to tillage and the maintenance of soil fertility. Field excursions will be made to study soil formation, problems of drainage, etc.

The study of soils is conducted by means of lectures, text-books, and laboratory work.

Sophomore and Senior Year—First and Second Term, 2 theoretical and 4 practical periods per week.

23. FERTILIZERS. Of vital interest to the eastern and southern farmer of the present day is the fertilizing question. Between it

and the profit and loss account is a very close connection, and frequently a lack of knowledge of the subject entails upon the farmer both the loss of money paid and of the possible increase of the crop. In this course the subject is developed logically from the needs of the plant and the efficiency of the soil to the selecting of the proper plant foods for each crop under varying conditions of soil and climate. Special attention is given to the home-mixing of fertilizers.

Sophomore Year—Third Term, 2 theoretical and 4 practical periods per week.

24. Principles of Soil Management. Prerequisite, Soils 22. A laboratory course dealing with special problems of soil management and soil analysis intended for students specializing in agronomy. Special attention will be given to the study of soils from the College farm, which have been subjected to different methods of cropping and treatment.

Junior Year—First Term, 4 practical periods per week.

25. Grain Judging. This course consists of a critical comparative study of the cereals and other farm seeds from the standpoint of market grading and fitness for seed purposes. It is designed so to familiarize the student with the subject that he may not only handle his own crops to the best advantage, but may also be qualified to act as a judge at county fairs, grain shows, etc. Instruction is given by means of laboratory practice and lectures. This course is given to students in the Rural Engineering Course in the Senior Year.

Junior Year—Second Term, 1 theoretical period and 4 practical periods per week.

Senior Year—Second Term, 2 practical periods per week.

26. Advanced Farm Crops. A course dealing with the improvement by selection and breeding of the cereal and forage crops. Great care is given in this course to the study of the results obtained in plant breeding at the Maryland Experiment Station and the United States Bureau of Plant Industry Farm at Arlington, Virginia.

Senior Year—First Term, 2 theoretical and 4 practical periods per week; Second Term, 4 practical periods per week.

27. ADVANCED SOILS. Prerequisite Soils 22. A course dealing with the study of the principal soil regions, series, and types of the United States, and specially of the soils of Maryland as to origin, formation, composition, and value from an agricultural point of view. This course is intended for students specializing in agronomy.

Students will be required to survey and map a given area of the College farm and make a report, including description of both the soils and subsoils, their physical properties, and the comparative value of the different soil types found.

Senior Year—First Term, 2 theoretical and 4 practical periods per week.

28. FARM MANAGEMENT. The course in farm management is designed to connect up the principles and practice which the student has acquired in the several technical courses and to apply them to the development of a successful farm business.

Economical production and disposition of products, maintenance and improvement of the producing units, and business methods in every operation, are as necessary to success in farming as in every other vocation and the effort is made to not only inculcate the necessity for these principles but to show how they may be adopted and practiced.

Senior Year—Second and Third Term, 2 theoretical and 4 practical periods per week.

29. RESEARCH AND THESIS. To be arranged for with the head of the Department.

Senior Year—Third Term, 4 practical periods per week.

30. FARM CROPS. A detailed study of the common farm crops. Lectures and practical work in field and laboratory.

First Year—First Term, 3 theoretical and 2 practical periods per week.

31. SOILS. A study of the physical and chemical conditions of the soils in their relation to profitable agriculture. Lectures, laboratory and field work.

First Year—Third Term, 3 theoretical and 4 practical periods per week.

32. ADVANCED AGRONOMY. Students desiring to specialize in agronomy may arrange with the head of the Department for a special course during the second year. It is not required that all of the time scheduled be given to agronomy subjects. If thought best, a part may be given to agronomy and a part to animal industry or horticulture. Elective.

Second Year—First and Third Term, 4 theoretical and 8 practical periods per week; Second Term, 2 theoretical and 4 practical periods per week.

33. FERTILIZERS. A study of the selecting of proper plant food for each crop under varying conditions of soil and climate. Special attention is given to the home-mixing of fertilizers.

Second Year—Second Term, 3 theoretical and 2 practical periods per week.

34. GRAIN JUDGING. Instruction is given in this course to fit the student to handle his own crops to the best advantage and to qualify him to act as a judge at county fairs, grain shows, etc.

Second Year—Second Term, 1 theoretical period and 4 practical periods per week.

35. FARM MANAGEMENT. Lectures and practice.

Second Year—Second Term, 2 theoretical and 2 practical periods per week.

36. FARM FORAGE CROPS. A study of the forage crops of the United States, particularly those adapted to Maryland conditions.

Second Year—Third Term, 3 theoretical and 2 practical periods per week.

ANIMAL HUSBANDRY.

PROFESSOR RUFFNER.

MR. STANTON.

The Department of Animal Husbandry stands for all lines of work which pertain to the judging, selecting, breeding, feeding, development, care and management of the various breeds and classes of domesticated animals. Good herds of stock are being established at the Maryland Agricultural Experiment Station which are of use

to the student in his studies. In addition to the supply of stock on the farm the proximity of the College to Washington and Baltimore makes it possible for the student to get excellent material for study.

It is quite evident that there is but one way to make a young man a proficient judge of live stock, and that is by training the eye. In all of the lecture and laboratory work outlined in the courses the work is demonstrated with living specimens.

Junior and Senior students taking this course are sent to farms throughout the State of Maryland to supervise advanced registry tests for the dairy associations. These trips give the students the advantage of observing the most up-to-date dairy farms in the country, in addition to practical experience. Each year a judging team consisting of three students participates in the student's contest in judging dairy cattle at the National Dairy Show. Students in any of the agricultural courses are eligible to compete for a place on this team. The selection of students for the team is based upon ability and efficiency in this line of work.

Students desiring to specialize in any line of live stock are allowed to do so and animals are furnished for the special purpose whenever possible.

COURSES OFFERED.

40. BREEDS AND JUDGING. This course is devoted to the detailed study of all breeds and classes of live stock. The practical work commences with a study of the animal form by the use of the score-card. Special attention is given to the relation of form to function. First, the productive types are firmly fixed in the student's mind; then more specific breed characteristics are taken up. In teaching this work living specimens and lantern slides are used.

References, text-books and lectures.

Freshman Year—First Term, 1 theoretical period and 4 practical periods per week.

41. ELEMENTARY LIVE STOCK MANAGEMENT. Lectures are given on the housing, feeding, care and management of dairy cattle, beef cattle, horses, sheep and swine. The practical work consists

of the application of the principles developed in the lectures and takes up the drawing of barn plans and other stable conveniences. The last few weeks of this term are devoted to a special study of the testing of milk and milk products.

References and lectures.

Freshman Year—Second Term, 3 theoretical and 4 practical periods per week.

42. Breeds and Breeding. One afternoon of each week is devoted to the study of breeds and types of live stock. The student is taught the relative value of the different types, special attention being given to the market classes and grades of live stock. Horses are studied from the standpoint of those most valuable to the farmer on the farm and those demanded by cities and the U. S. Army. The term is divided so as to give the study of horses, beef cattle, sheep and swine an equal amount of time. This course includes excursions to live stock shows and noted breeding farms.

Junior Year—First Term, 4 practical periods per week.

43. Animal Nutrition. This course embraces the principles and practice of animal feeding. After covering the principles of nutrition, it takes up the composition of feeding stuffs, their combination into properly balanced rations, and the relation between the sustenance of animals and their products. Many practical problems are solved. Students entering this course should have completed courses in organic chemistry and comparative anatomy and physiology.

Text-books, lectures and references.

Junior Year—Second Term, 3 theoretical and 2 practical periods per week; Third Term, 2 theoretical and 4 practical periods per week.

44. Principles of Breeding. This course takes up the principles and practices involved in the improvement of domestic animals, including the subjects of reproduction, variation, heredity, selection, line breeding, inbreeding, cross-breeding, grading and a historical study of the results.

Junior Year—Second Term, 3 theoretical periods per week.

45. Animal Husbandry. Fundamental principles of animal husbandry and their relations to soil fertility and farm economy.

This course is given to students in rural engineering.

Lectures, references, laboratory work, and field excursions.

Junior Year—Third Term, 2 practical periods per week.

46. STOCK JUDGING. This is an advanced course in the judging of live stock. The major portion of the work is done by the method of comparative judging, similar to county and state fair work.

Text-books, references and lectures.

Junior Year—Third Term, 2 theoretical and 4 practical periods per week.

47. ANIMAL NUTRITION. This advanced course is given so that each student can make a special study of animal production, including a consideration of successful practices in feeding for market, fitting for show, and the management of the breeding herd or flock. Independent work is allowed such as rearing for mutton and wool; production of winter lambs; fitting horses for sale; and methods of handling and training horses.

Senior Year—First Term, 3 theoretical and 4 practical periods per week.

48. FARM DAIRYING AND DAIRY MANUFACTURES. This course takes up a study of the care and handling of milk and cream on the farm, centrifugal separation, clarification, pasteurization, the manufacture of frozen products, neufchatel and cottage cheese, the preparation and marketing of fermented milk drinks, preparation and use of starters, farm butter making, determination of moisture and salt in butter under creamery operation, determination of specific gravity and total solids in milk by means of the lactometer, and the per cent. of fat in ice-cream, evaporated milk, and condensed milk with the Babcock machine.

References and lectures.

Senior Year—First Term, 3 theoretical and 8 practical periods per week.

49. DAIRY MANAGEMENT. This course is devoted to a study of the care, management and feeding of the dairy herd; selection and care of the herd bull; raising calves and heifers; improvement of the herd through breeding and feeding operations; pedigrees; keeping herd records and the practical applications of methods for the production of clean milk.

References and lectures.

Senior Year—Second Term, 2 theoretical and 4 practical periods per week.

50. FARM POULTRY. This course takes up the methods of housing, natural and artificial incubation and brooding, feeding, breeds and disease of poultry.

Lectures, references and text-books.

Senior Year—Second Term, 3 theoretical periods per week.

51. ADVANCED LIVE STOCK MANAGEMENT. The work to be done in this course is arranged by the head of the Department and the individual student. The student is to take some class of farm animals, feed and care for them. Each student is to satisfy the instructor that he can milk and feed dairy cows. Other animals besides dairy cows are used whenever desirable.

Senior Year—Third Term, 2 theoretical and 4 practical periods per week.

52. RESEARCH AND THESIS. The lines of work and subjects to be investigated are to be arranged with the head of the Department. The object of this work is to develop independence and originality in the student, and also to give him a taste for personal investigation upon lines which are of particular interest to himself. The results of these investigations are usually incorporated in a thesis.

Senior Year—Second Term, 4 practical periods per week.

53. BREEDS AND JUDGING. The student begins with the breeds of live stock, making a thorough study of their development and characteristics and also of the pedigrees and performances of superior individuals among horses, cattle, sheep and swine. The practical part of the course is devoted to the judging of horses, dairy cattle, beef cattle, sheep and swine.

First Year—First Term, 2 theoretical and 4 practical periods per week.

54. BREEDING. The main object of this course is to direct attention and to stimulate interest in the more tangible physical basis of heredity. A scientific study of the physical aspects of heredity leads to conclusions that fully accord with the teachings

of the work of our master breeders. It is the aim to limit discussion to points upon which scientific opinion is quite well agreed.

Text-books, lectures and references.

First Year—Second Term, 3 theoretical and 2 practical periods per week.

55. DAIRYING. This course takes up a study of the care and handling of milk and cream on the farm, centrifugal separation, pasteurization and the testing of milk and milk products.

First Year—Third Term, 3 theoretical and 4 practical periods per week.

56. ANIMAL INDUSTRY. A study of the successful methods of operating farms devoted chiefly to live stock production and of the systems to be applied to Maryland conditions. The student may arrange with the head of the Department to utilize one-half of scheduled time in other Departments. Elective.

Second Year—First and Third Term, 4 theoretical and 8 practical periods per week; Second Term, 2 theoretical and 4 practical periods per week.

57. ANIMAL FEEDING. This course embraces the principles and practice of animal feeding. After covering the principles of feeding it takes up the composition of feeding stuffs, their combinations into properly balanced rations, and the relation between the sustenance of animals and their products. Problems relating to balanced rations are solved.

Text-books, lectures and references.

Second Year—First Term, 3 theoretical and 2 practical periods per week.

58. FARM POULTRY. A general course dealing with poultry house construction, yarding, fattening, killing, dressing, marketing and a brief description of the more common breeds. Demonstrations are given in the practices of handling poultry.

Second Year—Third Term, 2 theoretical periods per week.

BOTANY AND VEGETABLE PATHOLOGY.

PROFESSOR NORTON.
ASSOCIATE PROFESSOR ROSE.

The courses in botany are intended to give such knowledge of the vegetable kingdom as is a proper element in general culture; to train the student mind in observation, comparison, generalization and other mental processes essential to true scientific methods in any work; and to furnish a basis for practical studies directly connected with agriculture, since plants are the subjects dealt with in the field and garden. In addition to the courses in pure botany, others of special economic trend are given. These are specially for students in the Agricultural and Horticultural Courses, and take up such botanical studies of cultivated plants, plant diseases, etc., as may be useful in practical life to the professional farmer or gardener.

The equipment and means for illustration and demonstration consist of a reference library containing the principal botanical works needed by students, charts and maps, compound and dissecting microscopes, preserved specimens for illustration and a representative collection of Maryland plants; microtome and other instruments together with reagents and apparatus for histological work and physiological experiments; and a culture room, sterilizers, incubators and other facilities for the study of plant diseases.

Advanced students have an opportunity to observe the work being done in the laboratory of Vegetable Pathology and greenhouse of the State Horticultural Department and of the Experiment Station, and, if competent, to assist in the same. Special attention is given to students who wish practice in the treatment of plant diseases, as it is the desire of the Department to encourage young men to engage in this work as a business.

COURSES OFFERED.

60. GENERAL BOTANY. A course designed to give the student a view of the plant kingdom. Type specimens of the algae, fungi, liverworts, mosses, ferns and seed plants are studied in the field

and laboratory and careful drawings made of the various structures. In the study of each type, special attention is given to such points as habitat, nutrition and methods of reproduction.

Freshman Year—Third Term, 2 theoretical and 6 practical periods per week.

61. PLANT HISTOLOGY. The student becomes familiar with the cell and its parts and the different tissues of the various parts of the plant. Typical cells of the protective, strengthening, conducting, storage and meristematic tissues of the plant are studied and careful drawings made.

Sophomore Year—First Term, 1 theoretical period and 6 practical periods per week.

62. PLANT PHYSIOLOGY. This course gives the student an understanding of the life processes of the plant. A set of fifty experiments is performed in the laboratory and greenhouse and the results carefully recorded. These experiments illustrate the essential facts of such processes as absorption and loss of water, photosynthesis, relation to the inorganic and organic elements, growth, movement and death.

Sophomore Year—Second Term, 2 theoretical and 4 practical periods per week; Third Term, 1 theoretical period and 4 practical periods per week.

63. COMPARATIVE MORPHOLOGY AND CLASSIFICATION. This course is an extension of course 60 and is required of all students specializing in biology.

Junior Year—First Term, 2 theoretical and 4 practical periods per week.

64. ECONOMIC PLANTS. Lectures are given on the names, classification, nativity and uses of the useful and detrimental plants of the world, and field and laboratory studies are made of the common cultivated plants. This is done with a view to enabling the student to know the scientific names and relationship of the plants with which he comes in contact.

Junior Year—Second Term, 1 theoretical period and 4 practical periods per week.

65. Microscopy of Foods and Drugs. The identification of various food and drug products and their adulterants by means of the microscope.

Junior Year—Third Term, 2 theoretical and 4 practical periods per week.

66. Vegetable Pathology. This includes microscopic and macroscopic examinations of parasitic fungi in their relations to diseases in higher plants, studies of the nature of disease in plants, physiological diseases, etc., together with the best known means for the prevention and control of diseases. Lectures, reference work, laboratory work and experiments in infection and treatment constitute the course.

Junior Year—Third Term, 2 theoretical and 4 practical periods per week.

67. Vegetable Pathology. This course is an extension of the above course and is required of students specializing in botany.

Junior Year—Third Term, 2 theoretical and 6 practical periods per week.

68. Advanced Botany. Elective courses for students of the Biological Course and for post-graduate students are offered in methods in plant pathology, botanical microchemistry, histology of trees, weeds and poisonous plants, seed testing, taxonomy or advanced work in any of the undergraduate courses before mentioned.

Senior Year—7 theoretical and 12 practical periods per week.

69. Research. Students electing botany devote a portion of their time in the Senior year to the completion of an original study of some botanical subject upon which they prepare the graduation thesis. The time scheduled is a minimum.

Senior Year—8 practical periods per week.

70. Seeds and Weeds. The student is taught to recognize the important weeds and the seeds produced by them.

First Year—First Term, 1 theoretical period and 4 practical periods per week.

71. Plant Diseases. A practical study of diseases of plants to enable the student to recognize them in the field. A course in sprays and spraying is given in cooperation with the Zoology

Department in which the student is taught methods of disease control.

Second Year—First Term, 2 theoretical and 2 practical periods per week.

CHEMISTRY AND BACTERIOLOGY.

PROFESSOR MCDONNELL.
PROFESSOR BROUGHTON.
MR. DENNIS.
MR. WHITE.

The Chemistry Department is charged with two distinct classes of work. (1) The licensing, inspection and analysis of fertilizers, feeds and agricultural lime sold in the State, the Professor of Chemistry being, *ex officio,* the State Chemist. The results of this work are published in a "Quarterly" bulletin which is sent free to all Maryland farmers who apply for it. (2) The instruction of students.

The Chemical Laboratory Building contains laboratories, office and balance room for the State fertilizer, feed and lime control work, lecture room, supply room and four other laboratories. In addition classrooms in Morrill Hall are used as are two bacteriological laboratories at the Experiment Station and the Experiment Station canning laboratory.

The laboratories are well equipped with standard apparatus and chemicals, chemical and assay balances, polariscopes, refractometers, spectroscopes, microscopes with high-power oil immersion lenses, etc. Each student is provided with a locker, reagents and apparatus and has the use of a working desk.

The Department is provided with a library of standard reference books on chemistry and related subjects, to which additions are made from time to time.

Instruction in chemistry is begun with the Second Term of the Freshman year. Laboratory work by the student is emphasized and special attention is given to elements and compounds of practical and economic importance. The first year is intended to give

the student that practical and theoretical knowledge of elementary chemistry which is essential in the education of every man, no matter what his vocation. It also serves as a foundation for advanced work in chemistry, if the Course in Agricultural Chemistry is chosen. The outline of Course in Canning may be found on page 103.

CHEMISTRY.

COURSES OFFERED.

80. GENERAL CHEMISTRY. Recitations, lectures and practical work in the laboratory, where the student performs the experiments under the directions of instructors.

Text-book: McPherson and Henderson's "General Chemistry."

Freshman Year—Second and Third Term, 4 theoretical and 2 practical periods per week.

81. METALS AND QUALITATIVE ANALYSIS. A continuation of course 80.

Sophomore Year—First Term, 2 lecture and 6 practical periods per week.

82. QUALITATIVE ANALYSIS. An advanced course for students in the Chemical Course.

Reference books: Treadwell and Hall's "Qualitative Analysis," and Prescott and Johnson's "Qualitative Analysis."

Sophomore Year—Second Term, 1 lecture period and 8 practical periods per week.

83. QUANTITATIVE ANALYSIS. For students not taking the Chemical Course. A brief course illustrating some of the general principles in the quantitative study of chemistry. In the latter part of the course the students are given samples of fertilizers, feeds, butter, milk, etc., for analysis.

Text-book: Lincoln and Walton's "Quantitative Analysis."

Sophomore Year—Second Term, 1 conference period and 8 practical periods per week.

84. THEORETICAL CHEMISTRY. A discussion of the fundamental laws and theories of modern chemistry, with laboratory work in electro chemistry.

Text-books: Le Blanc's "Theory of Electro Chemistry," and Watts' "Laboratory Course in Electro Chemistry."

Sophomore Year—Third Term, 2 lecture and 4 practical periods per week.

85. MINERALOGY. This is a course of determinative mineralogy. The more important minerals are identified by their more characteristic physical and chemical properties, the blow-pipe being an important aid.

Text-book: Brush and Penfield's "Determinative Mineralogy and Blow-pipe Analysis."

Sophomore Year—Third Term, 1 lecture period and 4 practical periods per week.

86. GEOLOGY. A course in the history of dynamic, stratigraphic and physiographic geology. The latter part of the course is devoted to the geology of Maryland, specially as affecting the character of the soil, mineral wealth and other economic condition of the State.

Text-book: Chamberlin and Salisbury's "College Geology."

Junior Year—First Term, 2 lecture and 2 practical periods per week; Second Term ,2 lecture periods per week.

87. ORGANIC CHEMISTRY. For students taking the Agricultural, Biological and General Science Courses. Recitations and lectures.

Text-book: Remsen's "Organic Chemistry."

Junior Year—First Term, 4 theoretical periods per week.

88. ORGANIC CHEMISTRY. For students making a specialty of agricultural chemistry.

Text-books: Perkin and Kipin's "Organic Chemistry," and Gattermann's "Practical Methods of Organic Chemistry," translated by Schober.

Junior Year—3 lecture and 4 practical periods per week.

89. QUANTITATIVE ANALYSIS. Consisting of gravimetric, volumetric, and colorimetric determinations. Samples are selected so as to illustrate the general principles of the work. The volumetric work consist of acidimetry, alkalimetry, iodometry, oxidation and reduction. Neatness and accuracy are insisted upon in the laboratory, and in the conference periods the chemistry and mathematics of each determination are thoroughly discussed.

Text-books: Olsen's "Quantitative Analysis," and Sutton's "Volumetric Analysis."

Junior Year—First and Third Term, 1 lecture period and 12 practical periods per week; Second Term, 1 lecture period and 14 practical periods per week.

90. STOICHIOMETRY. Problems relating to analytical and applied chemistry.

Junior Year—1 theoretical period per week.

91. AGRICULTURAL CHEMISTRY. The chemistry of soils, fertilizers, plant life, animal life, etc.

Text-book: Stoddart's "Chemistry of Agriculture."

Senior Year—First Term, 4 theoretical periods per week.

92. AGRICULTURAL CHEMICAL ANALYSIS. This is an advanced course in the analysis of fertilizers and fertilizing materials, feeding stuffs, butter, milk, sugar, starch, etc.

Senior Year—First Term, 12 practical periods per week.

93. PHYSIOLOGICAL CHEMISTRY. Recitations and lectures.

Text-book: Hawk's "Physiological Chemistry."

Senior Year—First Term, 4 theoretical and 4 practical periods per week.

94. PHYSICAL CHEMISTRY. In this course the student becomes familiar with the advanced theories of chemistry, and some of the methods employed by research chemists. The laboratory work consists of the determination of the boiling and melting points, lowering of the freezing point by substances in solution, determination of vapor densities, and combustion methods for the determination of carbon, hydrogen and nitrogen.

Text-book: Walker's "Physical Chemistry."

Senior Year—Second Term, 3 theoretical and 14 practical periods per week; Third Term, 3 theoretical periods per week.

95. INORGANIC CHEMISTRY. An advanced course covering more in detail the subject matter set forth in the general chemistry offered in the Freshman year.

Senior Year—Second and Third Term, 3 theoretical periods per week.

96. INDUSTRIAL CHEMISTRY. The study of the practical methods employed in the various chemical industries. Visits are made to

ice, fermentation, and gas plants; also to fertilizer, glass, iron and steel works, etc.

Text-book: Thorp's "Outlines of Industrial Chemistry."

Senior Year—Second and Third Term, 3 theoretical periods per week.

97. ADVANCED AGRICULTURAL ANALYSIS.

Text-book: "Methods of Analysis of the Association of Official Agricultural Chemists."

Senior Year—Third Term, 8 practical periods per week.

98. THESIS. Investigation along agricultural chemical lines to be embodied in a graduating thesis. In addition to the time scheduled, a part of the work done under courses 93, 94 and 97 will be included.

Senior Year—Third Term, 6 practical periods per week.

99. FARM CHEMISTRY. This course consists of an elementary study of general and agricultural chemistry, with special reference to the chemistry of plants, animals, fertilizers, etc. The course is offered to students taking the two-year Course in Agriculture.

Text-book: Kahlenberg and Hart's "Chemistry in Its Relations to Daily Life."

First Year—Third Term, 2 theoretical and 2 practical periods per week.

Second Year—First Term, 4 theoretical and 4 practical periods per week.

BACTERIOLOGY.

COURSES OFFERED.

100. AGRICULTURAL BACTERIOLOGY. Preparation and sterilization of routine and special media. Routine and special staining methods. Studies on the biochemical action of bacteria. The morphological and physiological characteristics of those organisms involved in the economy of nature, dairying, agriculture, etc. The bacteriological examination of milk and its products, soils and foods. Practical demonstrations of problems in immunity.

Text and reference books: Jordan's "General Bacteriology," Swithinbank and Newman's "Dairy Bacteriology," and Conn's "Agricultural Bacteriology."

Junior Year—Second and Third Term, 8 practical periods per week.

101. GENERAL BACTERIOLOGY. Preparation of media and stains. The practical application of various methods of sterilization. A study of the various procedures for anaerobic development and isolation of bacteria in pure cultures. Standard procedures for the examination of pure cultures supplemented by a routine determination of the morphological and physiological characteristics of pure cultures isolated from nature and having special functions in the field of agriculture, dairying and sanitation. The routine bacteriological examination of drinking waters, milk and its products, foods, soils and disinfectants. Lectures and practical demonstrations in immunity and resistance.

Text and reference books: Hiss and Zinnser's "General Bacteriology," Conn's "Agricultural Bacteriology," and Prescott and Winslow's "Bacteriology of Drinking Waters."

Senior Year—1 lecture period and 6 practical periods per week.

102. BACTERIOLOGY. Lectures and practical demonstrations of subjects pertaining to agricultural and dairy bacteriology, with emphasis on the bacteria in milk and soils.

Reference books: Swithinbank and Newman's "Dairy Bacteriology," and Lipman's "Dairy Bacteriology."

Second Year—Second Term, 4 practical periods per week.

CIVIL ENGINEERING.

PROFESSOR TALIAFERRO.

MR. SPRINGER.

The subjects pertaining to civil engineering are arranged with the object of emphasizing the fundamental principles through lectures and recitations in the class-room, supplemented by practical exercises in the field, drafting room and laboratory. Self-reliance being an essential factor in the success of an engineer, the student is encouraged in every way to develop this habit.

EQUIPMENT. In addition to minor engineering instruments, etc., the Department is at present equipped with three compasses, four transits and four levels.

The experimental laboratory contains a thousand pound Riehle cement testing machine and a hundred thousand pound Riehle machine for making tensile and other tests of the various kinds of materials. A description of this latter machine will be found on page 75, it having been purchased for the use of the Civil and Mechanical Engineering Departments. A description of the drafting and blue print rooms used by the Civil Engineering Department will also be found on page 75.

Some hydraulic apparatus of a character suited to the needs of the Department has been installed and other apparatus will be purchased as the funds permit.

TOURS OF INSPECTION—During the session members of the Senior and Junior classes, accompanied by an instructor, take trips for the purpose of making an examination of the different types of modern engineering construction.

COURSES OFFERED.

The subjects outlined, with one exception, constitute a portion of the curriculum of students in the Civil Engineering Course.

120. GENERAL ENGINEERING DRAWING. Isometric and cabinet projections. Perspective. Water coloring. Paper stretching. Blue printing. Ornamental lettering, round writing and title work. Floor plans, elevations and architectural details. Mapping contours and profiling. Conventional signs.

Freshman Year—First Term, 4 practical periods per week.

Junior Year—Second Term, 6 practical periods per week; Third Term, 8 practical periods per week.

121. SURVEYING. This course includes the use and adjustment of engineering instruments, the methods of land surveying, the plotting and computing of areas, dividing of land, the theory of the stadia, true meridian lines, leveling, topographical surveying, railroad curves and cross sectioning.

Texts: Raymond's "Plane Surveying," Hosmer and Breed's "The Principles and Practice of Surveying," and Pence & Ketchum's "Field Manual."

Freshman Year—Second Term, 2 theoretical periods per week; Third Term, 4 practical periods per week.

Sophomore Year—First Term, 4 practical periods per week; Second Term, 4 theoretical periods per week; Third Term, 2 theoretical and 4 practical periods per week.

Junior Year—First Term, 4 practical period per week.

122. MECHANICS. A study of statics, dealing with the composition and resolution of forces, moments, couples. machines, and laws of friction; and of dynamics, dealing with velocity, acceleration, laws of motion, work, energy, and applications to problems.

Junior Year—First Term, 4 theoretical periods per week.

123. RAILWAY ENGINEERING. A study is made of preliminary and location surveys, cross sectioning, calculation of quantities, etc.

Text: Allen's "Railroad Curves and Earthwork."

Junior Year—Second and Third Term, 3 theoretical periods per week.

124. BRIDGE AND STRUCTURAL DESIGN. This course includes the complete design and detailing of a steel roof truss and a plate girder; the detailing from standard commercial drawing sheets of floor beams, girders and columns; and the complete design of a bridge truss of either the Warren or Pratt type. The stresses are determined by both analytical and graphic methods.

Texts: Merriman and Jacoby's "Stresses," Cooper's "Bridge Specifications," "Cambria Hand Book," Thompson's "Bridge and Structural Design," and Merriman and Jacoby's "Bridge Design."

Junior Year—Second and Third Term, 2 theoretical and 4 practical periods per week.

125. MECHANICS OF MATERIALS. This course treats of the elasticity and resistance of materials of construction, and the mechanics of beams, columns and shafts.

Text: Merriman's "Mechanics of Materials."

Junior Year—Second Term, 3 theoretical periods per week; Third Term, 5 theoretical periods per week.

126. SURVEYING. This course is intended, primarily, to meet the needs of students in agriculture, horticulture, and engineering education. It includes the use of the compass, transit and level, one or more methods of land surveying, the plotting and computing of areas, leveling and topographical surveying.

Text: To be selected.

Junior Year—Third Term, 2 theoretical and 4 practical periods per week.

127. PRACTICAL PROBLEMS. The necessity for practical work on the part of those desiring to enter upon engineering as a profession is obvious. To meet this condition a number of hours have been scheduled for field and laboratory work in practical problems relating to engineering. The laboratory work includes the testing of cement and other materials of construction, various hydraulic experiments, the operation of engines, etc. The scheduled hours constitute a minimum, the student being encouraged to give as much more of his time as is possible to problems of this character.

Junior Year—Third Term, 8 practical periods per week.

Senior Year—First Term, 8 practical periods per week; Second and Third Term, 4 practical periods per week.

128. FARM DRAINAGE. Students in agriculture continue course 126, the time being given to problems in drainage, particularly tile drainage.

Senior Year—First Term, 4 practical periods per week.

129. CONCRETE. A study of cement, concrete, and reinforced concrete construction.

Text: Hool's "Reinforced Concrete Construction."

Senior Year—First Term, 4 theoretical periods per week.

130. HYDRAULICS. The principles of hydraulics, flow through pipes, water supply, etc., are discussed in this course. This course is continued in the Second Term as hydromechanics.

Text: Lea's "Hydraulics."

Senior Year—First Term, 4 theoretical periods per week.

131. ESTIMATES OF COST. Lectures are given on the methods of estimating cost and these are supplemented by problems of a practical nature.

Senior Year—Second Term, 1 theoretical period and 4 practical periods per week.

132. GEODESY. A study of the theory and methods of geodetic surveying.

Senior Year—Second Term, 3 theoretical periods per week.

133. HIGHWAY ENGINEERING. This course includes the location, construction and maintenance of roads.

Text: Blanchard and Drowne's "Highway Engineering."

Senior Year—Third Term, 5 theoretical periods per week.

134. CONTRACTS AND SPECIFICATIONS. A study of simplicity and legality in the preparation of contracts and specifications in engineering works.

Senior Year—Third Term, 2 theoretical periods per week.

135. FARM WATER SYSTEMS. An elementary course dealing with the water supply and the disposal of sewage on the farm.

Second Year—First Term, 4 practical periods per week.

136. FARM DRAINAGE. An elementary course in the theory and practice of drainage.

Second Year—Third Term, 2 theoretical and 2 practical periods per week.

ECONOMICS, POLITICAL SCIENCE AND HISTORY.

PROFESSOR BOMBERGER.

The courses in this Department are specially designed to prepare young men for the active duties of citizenship. The first year of the Collegiate work is devoted to the study of modern history, which is followed by the principles of civil government, constitutional history, political economy (with especial reference to current, social, rural and industrial problems), and, finally, the elements of business and international law.

ECONOMICS AND POLITICAL SCIENCE.

COURSES OFFERED.

140. CIVIL GOVERNMENT. Study of the history and development of the Constitution of the United States.

Text used: Beard's "American Government and Politics."

Junior Year—First and Second Term, 3 theoretical periods per week.

141. Business Law. Principles of law as practically applied in everyday life and business.

Text used: Huffcut's "Elements of Business Law."

Junior Year—Third Term, 3 theoretical periods per week.

142. Political Economy. Principles of political economy and industrial development of the United States; rural economics; social science; and current problems.

Text used: Seager's "Principles of Economics."

Senior Year—4 theoretical periods per week.

143. Comparative Government. Study of the governments of the leading nations of Europe. Elective.

Text used: Ogg's "Governments of Europe."

Senior Year—First Term, 3 theoretical periods per week.

144. Municipal Governments. Study of typical modern municipal governments of the United States and Europe. Elective.

Senior Year—Second Term, 4 theoretical periods per week.

145. International Law. Elements of international law. Elective.

Text used: Davis' "Elements of International Law."

Senior Year—Third Term, 3 theoretical periods per week.

146. Rural Economics. Special study of rural economic problems. Elective.

Senior Year—First and Third Term, 3 theoretical periods per week; Second Term, 4 theoretical periods per week.

147. Business Law. A course for the students in the two-year Course in Agriculture on the principles of law as practically applied in everyday life and business.

Text used: Hamilton's "Practical Law."

Second Year—Second Term, 3 theoretical periods per week.

HISTORY.

COURSES OFFERED.

160. Modern European History. From the treaty of Westphalia to the present time.

Text used: Robinson and Beard's "Development of Modern Europe.'

Freshman Year—3 theoretical periods per week.

161. AMERICAN HISTORY. Political and economic history of the United States with special reference to the nineteenth century. Elective.

Sophomore Year—First and Second Term, 5 theoretical periods per week; Third Term, 4 theoretical periods per week.

162. HISTORY. Selected Topics.

Junior Year—3 theoretical periods per week.

163. ADVANCED HISTORY. Elective.

Senior Year—First and Third Term, 3 theoretical periods per week; Second Term, 4 theoretical periods per week.

164. EUROPEAN HISTORY. Outlines from 476 A. D. to 1684 A. D. Prerequisite, Ancient History to 476 A. D. Elective.

Sub-Freshman Year—3 theoretical periods per week.

ELECTRICAL ENGINEERING AND PHYSICS.

PROFESSOR CREESE.

MR. HODGINS.

ELECTRICAL ENGINEERING.

The work of the Electrical Engineering Course is so arranged as to give the student a thorough understanding of the fundamental principles of the various branches of electrical engineering, and at the same time to teach him to apply these principles to the practical problems with which the engineer has to deal. This purpose is carried out by means of lectures and recitations in the class-room, supplemented by practical work in the laboratories and drawing room.

EQUIPMENT. The Electrical Engineering Laboratories are located in the east wing of the engineering building. The rooms on the first floor are used for lectures, recitations and experimental demonstrations by the instructor; a room on the second floor is equipped with apparatus for experimental work in telephone engineering; and the basement contains the dynamo room and the electrical engineering testing room.

The electrical engineering testing room is fitted up with such appliances as are used to the best advantage in engineering practice.

Special effort has been made to purchase only the best instruments, as the use of poorer grades influences the student unfavorably. With poor instruments he cannot be taught to do satisfactory work and he becomes careless in the handling of them.

Among other things the following apparatus has been purchased for the testing laboratory:

A Leeds and Northrup potentiometer and Weston standard voltmeter and ammeter for calibrating the various measuring instruments used in the laboratory. A Sharp-Millar portable photometer and a Queen & Co. standard photometer for measuring the candle-power of lamps and for determination of illumination intensities. A large number of portable ammeters, voltmeters, and indicating wattmeters for direct and alternating current measurements; standard curve drawing voltmeter and ammeter; electrostatic voltmeter; frequency meters; silver and copper voltameters; Siemen's type electrodynamometer; watthourmeters, both direct and alternating current. A Leeds and Northrup standard portable testing set; heating devices; condensers; tachometers; multiple circuit ammeter and voltmeter switches. D'Arsonval galvanometers; standard resistance boxes and bridges, including a very accurate decade resistance box and a decade resistance and Wheatstone bridge; double and single contact keys, condenser keys, etc.

The lamps used for experimental purposes include direct and alternating current multiple carbon arc, metallic arc, mercury vapor and nernst lamps.

A Curtis steam turbine, direct connected to a 35-kilowatt compound generator, has been installed for testing purposes. This may be used in connection with the College lighting plant when needed, and will be used for light and power service in the engineering building.

The laboratory is so wired that connection may be made readily with any part of the College lighting plant, with the turbo-generator or with any of the apparatus in the dynamo room.

The apparatus in the dynamo room includes the following: A 10-kilowatt rotary converter of the latest type with speed limit and end play devices. A 5 horse-power variable speed commutating pole motor. A 7.5 kilowatt, 60 cycle, 220 volt alternator designed to

operate either as a polyphase generator, synchronous motor, frequency changer, constant speed induction motor, or variable speed induction motor; the following parts are supplied with the set to make possible its operation in any of the above named ways;—a stationary armature for use either as an alternating current generator or as an induction motor field; a revolving field; a squirrel cage induction motor rotor with starting compensator having self-contained switches; an induction motor rotor with internal starting resistance; and an induction motor rotor with 3 phase collector rings, external resistance, and controller. A 2 kilowatt booster set, consisting of a series motor and shunt generator with armatures mounted on the same shaft. A 5 horse-power compound direct current motor and a 1.5 horse-power shunt motor fully enclosed. A 7.5 kilowatt, 120 volt, 3 phase self-excited generator direct connected to a 115 volt compound direct current motor. A motor-generator set consisting of a 3.6 horse-power shunt motor direct connected to a 2 kilowatt compound generator. A 3 horse-power, 3 phase induction motor. A 0.5 kilowatt shunt generator belt connected to a 0.5 horse-power variable speed shunt motor. A 0.5 kilowatt series generator and a 0.25 horse-power, 60 cycle, single phase, induction motor. Two 2 kilowatt transformers to transform power from 110 or 220 volts to 1100 or 2200 volts. Various types of starting rheostats with automatic overload and no voltage release; field rheostats.

The main switchboards, consisting of two blue Vermont marble panels on pipe supports, are used to mount the necessary circuit breaker, rheostats, switches, etc., to control the generators and motors as well as the various circuits in the dynamo room and testing laboratory. Wire and water rheostats are arranged for load and regulation. Portable lamp-boards are so arranged that they may receive, at the proper voltage, from 0.04 to 100 amperes current. Portable ammeter, voltmeter and wattmeter switchboards have been constructed for use in machine tests. In addition to the special electrical engineering equipment, the College lighting plant will be used for illustrative and experimental purposes. This plant contains, together with other apparatus useful in teaching electrical engineering, two Bullock generators of 40 kilowatts total

capacity, and a switchboard equipped with a number of Weston ammeters, voltmeters and circuit breakers, and various types of rheostats.

An 8-inch Waltham bench lathe, with all the necessary attachments, has been installed in the dynamo room for the use of students in practical thesis work, and for making small articles, such as binding posts, connectors, etc., for use in the laboratories.

The telephone laboratory is equipped with two demonstration sets which were made by the Western Electric Co.

The magneto set consists of an oak panel upon which is mounted the following apparatus: Two line circuits with combined jacks and signals; double wound supervisory drops; complete cord circuits including ringing and listening keys, operator's telephone set, magneto generator, etc. On one line circuit is connected a wall type subscriber's set, and on the other, a desk set.

The common battery set consists of an oak panel carrying the following equipment: Two line circuits with lamp signals; complete cord circuits, including ringing and listening keys, operator's telephone set, magneto generator, split repeating coils, condensers, retardation coil, supervisory lamps, etc. On one of the line circuits is connected a wall type subscriber's set, and on the other a desk set.

Both panels have all the wiring exposed to enable the student to make a complete study of these two principal types of telephone exchanges.

COURSES OFFERED.

The subjects outlined constitute the work in electrical engineering.

180. ELEMENTARY ELECTRICITY. This subject includes static electricity, dealing with the phenomena of electricity in its potential form, and the conception of electric potential, quantity, capacity, etc.; kinetic electricity, including the study of the fundamental laws and units, as Ohm's Law, Joules' Law, units of current, electromotive force, resistance, etc.; theory of magnetism, with its phenomena and forces; and electro-magnetism, which is the foundation for dynamo electric machine design and construction.

Text: Franklin and Macnutt's "Electricity and Magnetism."

Sophomore Year—Second and Third Term, 3 theoretical periods per week.

181. ELEMENTARY ELECTRICITY. A laboratory course designed to verify the laws and principles outlined in Electrical Engineering 180.

Sophomore Year—Second and Third Term, 2 practical periods per week.

182. ELEMENTARY ELECTRICITY AND MAGNETISM. This subject is given to enable the student to gain a general knowledge of the applications of electricity to commercial work, and deals very little with the mathematical theories of the various laws and principles. The subject includes a study of the methods of generating, distributing and utilizing electrical energy for practical purposes, and is intended to make the student familiar with modern electrical apparatus and machinery.

Text: Jacksons' "Elementary Electricity and Magnetism."

Sophomore Year—Third Term, 3 theoretical periods per week.

183. ELEMENTARY ELECTRICITY. A laboratory course arranged to illustrate the theoretical work as outlined in Electrical Engineering 182.

Sophomore Year—Third Term, 2 practical periods per week.

184. DYNAMOS AND MOTORS. This subject offers a short general course in direct and alternating currents. The study of various types of measuring instruments is followed by a general study of the operating characteristics of direct current generators and motors. The fundamental problems in single and polyphase circuits are taken up in detail; and finally a rather complete study is made of alternating current generators and motors, transformers and switchboard appliances.

Text: Franklin and Esty's "Dynamos and Motors."

Junior Year—First Term, 3 theoretical periods per week; Second Term, 4 theoretical periods per week.

185. ELECTRO-MAGNETISM AND CONSTRUCTION OF DYNAMOS. Beginning with the Junior Year and extending throughout the course, the principles involved in the construction and operation of both direct and alternating current dynamos and motors are taught. In teaching this subject, special care is exercised that

the mathematical and graphical developments shall be concise and logical. The direct current machine is first examined, and this results in a discussion of the different forms of armatures, their windings, cores, commutators, etc.; the various fields; the methods of arranging the windings for different purposes; the shape and material of the magnetic circuits; the bearings, shafts, and bed-plates; the methods of insulation; a full description of the materials of construction; the selection of types suited to the performance of specific duties; and the proper method for installing and operating. The characteristic curves and efficiencies of the different types are also illustrated at some length.

Text: Franklin and Esty's "Dynamo Electric Machinery."

Junior Year—First and Third Term, 3 theoretical periods per week; Second Term, 4 theoretical periods per week.

186. ELECTRICAL ENGINEERING LABORATORY. This elementary course in testing includes the methods of measuring resistance, current and electromotive force; elementary photometry; and methods of making up connections on various types of machines.

Junior Year—First and Second Term, 4 practical periods per week.

187. ELECTRICAL ENGINEERING LABORATORY. The study of direct current instruments. The measurements of resistance, current, and electromotive force; the use of the Wheatstone Bridge and galvanometers; loop and capacity tests of cables; calibration of instruments; study of direct current machines; testing of arc lamps; photometry; the operation of machinery and determination of the characteristic curves and efficiencies of machines.

Junior Year—First and Third Term, 8 practical periods per week; Second Term, 4 practical periods per week.

188. PRIMARY AND SECONDARY BATTERIES. The theories involved in the primary cell are developed and attention is directed to the various measurements and calculations pertaining to the subject. A study is made of the construction and use of the latest types of commercial cells.

Following the preliminary work on the primary cell, the study of the lead storage battery is taken up in detail. The work includes the general theory, the mechanical construction and the

commercial use of the various types of cells, together with the chemical and electrical actions encountered. In connection with the storage cell a study is made of the construction and use of the different forms of the auxiliary apparatus, such as end-cell switches, boosters, etc.

Text: Lyndon's "Storage Battery Engineering."

Junior Year—Third Term, 2 theoretical periods per week.

189. ELECTRIC MACHINE DESIGN. Practical calculation of dynamos, including detail calculations of field cores, armature windings, frames, commutator, armature core and collecting devices.

Junior Year—Third Term, 2 theoretical and 4 practical periods per week.

Senior Year—First Term, 4 practical periods per week.

190. ALTERNATING CURRENTS AND ALTERNATING CURRENT MACHINERY. A complete study is made of the fundamental phenomena and theories dealing with the effects of alternating currents, both single-phase and poly-phase. Included in this course there are a large number of problems, both analytical and graphical, which are specially valuable for giving a clear appreciation of the effects of self-inductance, mutual-inductance, and capacity in single-phase and poly-phase alternating current circuits.

The theory, construction and practical applications of single-phase and poly-phase alternating current machinery, which includes generators, synchronous, induction and repulsion motors, rotary converters, transformers, regulators, etc., are taken in detail.

The fundamental principles of the machinery are developed in the class-room and applied concurrently in the laboratory and designing room with special reference to their practical utilization.

Texts: Franklin and Esty's "Alternating Currents," McAllister's "Alternating Current Motors," and Karapetoff's "Electric Circuit."

Senior Year—First and Second Term, 5 theoretical periods per week; Third Term, 3 theoretical periods per week.

191. ELECTRICAL ENGINEERING LABORATORY. The determination of inductance, impedance, condensance, etc.; measurement of power in alternating current circuits; regulation and efficiency tests of alternators and transformers; parallel operation of alternators; phase characteristics, power factor, etc., of synchronous

motors; poly-phase transformation; mesh and star connections of transformers; tests of induction and synchronous motors.

Senior Year—8 practical periods per week.

192. ELECTRIC LIGHTING. This work begins with the study of the different systems of distribution used in arc and incandescent lighting and the discussion of the advantages and disadvantages of each from both financial and engineering standpoints. Attention is given to the best methods of obtaining good regulation, as upon this satisfactory lighting service depends. The proper arrangement and wiring of switchboards and the instruments which they contain, as well as the latest methods of protection from lightning, are treated in detail.

The student is made familiar with the manufacture and characteristics of the incandescent arc and many new forms of electric lamps; the selection of lamps for specific commercial duties; the principles underlying correct interior and exterior illumination; the manufacture of cables for underground work; and the materials used in overhead and conduit systems of distribution.

The proper arrangement, the type and the size of boilers, engines and dynamos in a central station for lighting and power purposes, are obtained by the study of typical plants in this country and abroad. Many problems involving the calculation of the wire and materials needed for the various system of distribution are given. These problems require for their solution a knowledge of the rules of the Underwriters' Association.

Text: Franklin's "Electric Lighting."

Senior Year—First and Second Term, 2 theoretical periods per week.

193. ELECTRIC POWER PLANTS AND TRANSMISSION. A study of the principles underlying the lay-out of power-house and sub-station machinery and circuits for high tension transmission and distribution systems, including the determination of the most economical size of conductors for such systems. The course includes numerous original and practical problems illustrating the principles.

Senior Year—Second and Third Term, 2 theoretical periods per week.

194. TELEPHONES AND TELEGRAPHS. This subject deals with the applications of electricity to telephony and telegraphy, with the details and construction of the instruments, switchboards and line work. In this course are included a study of telephone receivers and transmitters; the multiple switchboard; common battery circuits; manual and automatic exchanges; traffic regulation; intercommunicating systems; line construction; the effects of self-inductance, capacity and other disturbing influences; location of faults; simplex, duplex and quadruplex telegraphy; wireless telegraphy; and simultaneous telegraphy.

Text: Miller's "American Telephone Practice."

Senior Year—Second and Third Term, 2 theoretical periods per week.

195. TELEPHONE LABORATORY. The course consists of experimental work with telephone receivers, transmitters, induction coils, the effect of inductance, capacity, and resistance on the transmission of voice waves, and the operation of the magneto and common battery system of telephony.

Senior Year—Second and Third Term, 2 practical periods per week.

196. ELECTRIC MACHINE DESIGN. This work includes the design of reactance coils, transformers, induction motors, alternator armatures, field windings and frames, and special problems in the transmission of power.

Senior Year—Third Term, 1 theoretical period and 8 practical periods per week.

197. ELECTRIC RAILWAY ENGINEERING. The student is made thoroughly familiar with the following topics relating to electric railway work; the power, capacity, arrangement and methods of installation of the engines and boilers; the type, method of control and disposition of the generators in the dynamo room; the proper arrangement of the switchboards and the instruments to be used; the line work, including the various trolley and conduit constructions; the method of laying the track, with the weight and bonding of the rails; the motor equipment and car wiring; the type, power and control of the motors and the requirements for special conditions; the applications of the storage battery; the cost of installa-

tion and operation of the power plant; the management of the plant; and the modifications required for high speed electric traction.

Text: Sheldon and Hausman's "Electric Traction and Transmission Engineering."

Senior Year—Third Term, 3 theoretical periods per week.

PHYSICS.

The physical lecture room and laboratory are located in the new engineering building, in rooms excellently adapted to the purpose. The Department is well supplied with apparatus for lecture room demonstrations and for students' individual laboratory work, and new pieces of apparatus are added to the equipment each year.

COURSES OFFERED.

200. MECHANICS AND SOUND. This course includes lectures, recitations, and demonstrations on mechanics, hydrostatics, molecular physics, and sound. A knowledge of plane trigonometry is required for entrance. Physics 203 must be taken at the same time.

Text: Carhart's "College Physics."

Sophomore Year—First Term, 3 theoretical periods per week.

Junior Year—First Term, 2 theoretical periods per week.

201. ELECTRICITY AND MAGNETISM. The elementary theory of electrical phenomena is carefully developed and considerable time is spent on the solution of problems illustrating the practical application of the various laws. Physics 204 must be taken at the same time.

Text: Franklin and Macnutt's "Electricity and Magnetism."

Sophomore Year—Second Term, 3 theoretical periods per week.

Junior Year—Second Term, 2 theoretical periods per week.

202. HEAT AND LIGHT. The general theory of the nature of heat is followed by detailed discussion of expansion, change of state, transmission and radiation of heat and the elements of thermodynamics. A careful study is made of the nature and propagation of light, the laws of reflection and refraction, dispersion, interference, etc. Physics 205 must be taken at the same time.

Text: Carhart's "College Physics."

Sophomore Year—Third Term, 3 theoretical periods per week.

Junior Year—Third Term, 2 theoretical periods per week.

203. MECHANICS AND SOUND. A laboratory course consisting of a series of quantitative experiments arranged to illustrate and verify the laws and principles considered in the class-room and to develop in the student skill in manipulation and accuracy in making precise measurements. Physics 200 must be taken at the same time.

Sophomore and Junior Year—First Term, 4 practical periods per week.

204. ELECTRICITY AND MAGNETISM. A laboratory course arranged to give the student a general knowledge of elementary electrical measurements and the practical application of the laws of magnetism. The course includes the study of magnetic fields and the measurement of current, electromotive force, resistance, capacity, etc. Physics 201 must be taken at the same time.

Sophomore and Junior Year—Second Term, 4 practical periods per week.

205. HEAT AND LIGHT. A laboratory course including a number of experiments designed to illustrate and verify the laws and principles of heat and light. The experiments consist of the calibration of thermometers; measurement of specific heat, coefficient of expansion, heat of fusion, and vaporization; reflection with plane and spherical surfaces, refraction with prism and lenses, etc. Physics 202 must be taken at the same time.

Sophomore and Junior Year—Third Term, 4 practical periods per week.

206. ELEMENTARY PHYSICS. The course consists of lectures, recitations and laboratory work in mechanics, sound, heat, light, electricity and magnetism. The student is required to solve a number of problems and his attention is directed to the practical applications of the principles studied. The laboratory work consists of the performance of experiments by a group of students under the direct supervision of the Instructor. The work includes only those experiments which have a direct bearing on the theoretical work and all students in the class are required to prepare original notes on the experiments performed by each group.

Text: Carhart & Chute's "Principles of Physics."

Sub-Freshman Year—4 theoretical periods and 1 practical period per week.

ENGLISH AND PUBLIC SPEAKING.

PROFESSOR RICHARDSON.

MR. BYRD.

MR. SCHULZ.

This Department, as its name implies, covers the work of two closely allied branches.

The course in English, of a necessity, lies at the base of all other courses of instruction. Clear and comprehensive knowledge of his mother tongue is absolutely necessary to the student in pursuing any line of college work. Nor is this all; for aside from the practical value of the English instruction as an aid to other branches of study, and as a preparation for business and profession, it is to his training in this Department, in connection with his study of history, the classics and modern languages, that the student must look for the acquiring of the general culture which has always been the distinguishing mark of the liberally educated man. The English work, which is common to all courses, consists of the study of the structure of the English language, English and American literature, theoretical and practical rhetoric, critical reading and analysis, and constant exercise in expression, composition and theme writing.

The work in public speaking is begun with easy lessons in elocution, and this is continued until the student has acquired a mastery of vocal expression, and a pleasing and forcible delivery. The student is then required to deliver both extempore and prepared speeches and debates, covering a wide range of subjects, in this way not only securing practice in delivery, but also developing the power of logical thought.

COURSES OFFERED.

220. ADVANCED RHETORIC, COMPOSITION AND PUBLIC SPEAKING. Review of the principles of rhetoric with special reference to the

four kinds of composition. Composition consists of twelve themes based upon the work of the class.

Public speaking covers work in reading, declamation and delivery of original speeches.

Freshman Year—4 theoretical and 2 practical periods per week

221. COMPOSITION. Practice in English composition based upon a study of literature and the work of the class in course. Preparation of twelve themes on assigned subjects.

Sophomore Year—1 theoretical period and 2 practical periods per week.

222. PUBLIC SPEAKING. Lectures on ancient and modern orators, with readings and declamations from their orations. Extempore speeches. Original orations on subjects requiring careful and intelligent research. Debates.

Sophomore Year—2 practical periods per week.

223. ADVANCED COMPOSITION. Advanced work in English composition. Nine themes, six of which will be connected with the student's technical work. In theme writing the different technical departments and the English Department work conjointly.

Junior Year—First and Second Term, 1 theoretical period and 2 practical periods per week; Third Term, 1 theoretical period per week.

224. PUBLIC SPEAKING. Writing and delivering original speeches on subjects specially adapted to the future requirements in the vocation of the student. Debates on current subjects.

Junior Year—2 practical periods per week.

225. ENGLISH LITERATURE. A study of the history of English literature and the lives of the principal writers, with selected readings from English authors, orators and poets.

Text used: Long's "English Literature," and Newcomer and Andrew's "Twelve Centuries of English Poems and Prose."

Junior Year—2 theoretical periods per week.

226. ENGLISH COMPOSITION. Special themes illustrating the principles of debate, oration and short story.

Senior Year—First and Second Term, 2 practical periods per week; Third Term, 1 theoretical period per week.

227. ADVANCED ENGLISH AND PUBLIC SPEAKING. Required of students in the General Science Course. Subject to be selected after consultation with the head of the Department.

Senior Year—First Term, 2 theoretical periods per week; Second Term, 4 theoretical periods per week; Third Term, 3 theoretical periods per week.

228. ENGLISH. Review of grammar and composition based upon work taken in course.

First Year—First and Second Term, 4 theoretical periods per week; Third Term, 3 theoretical periods per week.

229. PUBLIC SPEAKING. Instruction and practice in declamation and delivery of original compositions.

First Year—2 practical periods per week.

230. FARM LITERATURE. A reading course in farm periodicals and other agricultural literature, with instruction in the taking and systematization of notes.

First Year—2 practical periods per week.

231. RHETORIC, COMPOSITION AND LITERATURE. A study of the principles of rhetoric and composition, together with a study of the history of literature and selected works of English and American authors. Composition is based upon experience and literature studied.

Sub-Freshman Year—4 theoretical and 2 practical periods per week.

ENTOMOLOGY AND ZOOLOGY.

PROFESSOR SYMONS.

PROFESSOR CORY.

MR. CHRISTIE.

Instruction is given in this Department with a view first, to giving the student the general knowledge of invertebrate and vertebrate zoology, which is necessary as a foundation science for an agricultural education; second, to fit the student in elementary and advanced entomology, both economic and systematic, so that he may pursue this specialty after graduation. A course in economic entomology and zoology is also given to provide those students who

are specializing in any of the allied agricultural sciences, with the information which is essential to their ideal development.

Students who intend to enter the medical profession or work in public health and sanitation will find in the Biological Course the work which will give them the best possible preparation for those professions.

Students wishing to take advanced work in invertebrate zoology are advised to select some subject in entomology. As the State and Experiment Station entomological work is conducted through this Department, there are special advantages for students in applied entomology.

The reference library is unusually complete, containing in addition to the standard works, a majority of the principal entomological and zoological publications. The laboratory is supplied with a large collection of insects for the use of students, and is well equipped with microscopes and other apparatus necessary for practical work in entomology and zoology.

The glass and screen insectaries of the State Horticultural Department and the Maryland Experiment Station are joined to the laboratory, and afford facilities for special investigation to a limited number of advanced students. In addition, a greenhouse 50 x 20 in the new range of houses has been set aside for entomological work.

A laboratory of the Bureau of Entomology has been established at the Experiment Station. The Parasitologist in charge is available for consultation by students specializing in parasitic Hymenoptera.

COURSES OFFERED.

240. GENERAL ZOOLOGY. This course is offered to all students taking agriculture and allied sciences, and is introductory to all other work in this Department. Laboratory work consists of a detailed study of form and function of type species. The theoretical study consists of lectures and recitations based on Hegner's College Zoology.

Text-book: Hegner's "College Zoology."

Freshman Year—First and Second Term, 2 theoretical and 4 practical periods per week.

241. ADVANCED ZOOLOGY. This course is required of Biological students. It consists of a study of comparative morphology and physiology, classification, distribution and laboratory technique.

Sophomore Year—2 theoretical and 4 practical periods per week.

242. GENERAL ENTOMOLOGY. This course consists of a study of insects, their classification, structure and relation to man. The practical work will consist of laboratory studies of the structures of typical forms, and a study in the field of the habits of insects, particularly those which are injurious to crops.

As an aid to this study, the student is required to make a collection of the more common insects which appear in the Spring.

Sophomore Year—Third Term, 2 theoretical and 4 practical periods per week.

243. ECONOMIC ZOOLOGY. The economic relations of animals to man and other animals is given careful consideration in this course which is required of Biological students.

Junior Year—First Term, 1 theoretical period and 4 practical periods per week; Second Term, 2 theoretical and 4 practical periods per week.

244. ECONOMIC ENTOMOLOGY. This course will embrace a detailed study of the life histories of insects of economic importance and the most approved means of control. Practical work will be given in the preparation and application of insecticides and the operation of spraying machinery, of which the Department has a large assortment.

Junior Year—Second Term, 3 theoretical and 2 practical periods per week; Third Term, 1 theoretical period and 4 practical periods per week.

245. ENTOMOLOGY. This course is required of students specializing in Entomology. It consists of a study of morphology and classification of insects, their biology and inter relations.

Junior Year—Second Term, 1 theoretical period and 4 practical periods per week; Third Term, 2 theoretical and 6 practical periods per week.

246. ADVANCED ENTOMOLOGY. Senior students specializing in Entomology will be required to take this course which will consist of insect anatomy, histology, physiology, taxonomy, ecology, and

distribution. Experimental and biologic methods, collection and recording of data, entomological literature and insect delineation will be given careful attention.

Senior Year—7 theoretical and 12 practical periods per week.

247. Animal Parasites. This course is designed specially for students specializing in animal husbandry. The course involves a discussion of the life history and habits of the more important internal and external parasites of domestic animals. It also includes a study of the treatment employed in the control of these pests.

Senior Year—Second Term, 2 theoretical and 4 practical periods per week.

248. Entomological Research. Independent research on some definite problem in entomology, the results of which are usually incorporated in the graduation thesis.

Senior Year—8 practical periods per week.

249. Economic Zoology and Entomology. This course consists of lectures, recitations and laboratory and field work, designed to familiarize the student with the habits, life history, essential structure from the classification standpoint, and methods of encouraging the beneficial and controlling the injurious forms on the farm. Special emphasis will be placed on insects, amphibians, reptiles and birds.

First Year—Second and Third Term, 2 theoretical and 2 practical periods per week.

250. Sprays and Spraying. A critical study will be made of spraying apparatus, accessories and spray materials in the second term and the knowledge thus gained will be applied in actual spraying operations in the third term.

Second Year—Second Term, 1 theoretical period and two practical periods per week; Third Term, 4 practical periods per week.

HORTICULTURE.

PROFESSOR SYMONS.
PROFESSOR BECKENSTRATER.
DR. BESLEY.
ASSOCIATE PROFESSOR ANSPON.
ASSOCIATE PROFESSOR STODDARD.
MR. WHITE.

Recognizing the great importance of every phase of this subject in the State, the Department of Horticulture is offering instruction to students desiring to specialize in either pomology, vegetable culture or landscape gardening and floriculture. The courses in this subject have been revised, providing for general courses in all phases of horticulture during the Freshman and Sophomore years and permitting them to specialize in any of the above subjects in the Junior and Senior years.

The arrangement of the courses is, of necessity, subject to such adjustment as will advance the best interests of the students. The object in each course will be to give practical and theoretical training in fruit growing, truck farming and commercial landscape gardening and floriculture. Under the present arrangement the specialists in each subject will have greater opportunity to keep familiar with the progress of their work through the practical demonstration and experimental work in the State.

The students will be required to do practical work throughout the course, and in addition, they must have spent at least two summers or the equivalent, during the four years' course, in an approved commercial establishment dealing with the subject in which they are specializing. The equipment of the Department is being steadily increased and the orchards, gardens and greenhouses of College and Experiment Station afford unlimited opportunities for practical observation. In addition, the students of each course will be expected to take trips to selected commercial orchards, truck farms, greenhouses and markets.

The Department of Horticulture offers a four-year course leading to the degree of Bachelor of Science, and electives in the two-year Course in Agriculture for proficiency in which a certificate is awarded.

POMOLOGY.

COURSES OFFERED.

260. PRINCIPLES OF POMOLOGY. This is an introductory course which deals with the principles of fruit growing and covers the methods of propagation, planting, cultivation and pruning.

Sophomore Year—First Term, 1 theoretical period and 4 practical periods per week; Third Term, 2 theoretical periods and 2 practical periods per week.

261. COMMERCIAL POMOLOGY. This course considers the harvesting, packing, storing and marketing of fruits. Special stress is given to transportation and market problems.

Junior Year—First Term, 2 theoretical and 4 practical periods per week.

262. FRUIT JUDGING. In this course the student is given practical exercises in judging fruit and selecting fruits for exhibition purposes. The standards and principles governing the judging of fruits are applied.

Junior Year—First and Second Term, 2 practical periods per week.

263. PRACTICAL POMOLOGY. A study of the orchard sites, soils, varieties and planting plans for the orchard and garden, cultivation, cover crops, companion crops, fertilizers and pruning as practiced in commercial fruit plantations.

Junior Year—Second Term, 2 theoretical and 4 practical periods per week; Third Term, 4 practical periods per week.

264. PRACTICAL SMALL FRUIT CULTURE. Practical directions for the production and handling of strawberries, grapes and bush fruits for home use and market.

Junior Year—Third Term, 2 theoretical and 2 practical periods per week.

265. SYSTEMATIC POMOLOGY. This course embraces a study of the evolution and relationship of the economical fruits. It includes exercises in describing and identifying the leading commercial varieties.

Senior Year—First Term, 2 theoretical and 4 practical periods per week; Second Term, 1 theoretical period and 4 practical periods per week.

266. Advanced Pomology. Special problems in adaptation, propagation, cultivation, pruning, harvesting and marketing as they arise in commercial orchards will be discussed. The origin and development of the various fruit sections and industries will also be considered and a study made of the men interested and the methods which they use. In this course it may be necessary at times for the student to visit orchards in other sections of the State.

Senior Year—First and Third Term, 2 theoretical and 4 practical periods per week.

267. Nut Culture and Citrus and Sub-Tropical Fruits. This course is designed to cover these fruits in a general way.

Senior Year—Second Term, 3 theoretical periods per week.

268. Plant Breeding. A general course in the science and art of plant breeding. Observed factors in organic evolution, variation and heredity are considered in so far as they have a bearing upon this subject. The discussion of the various methods of breeding and improvements are accompained by practice in the orchard, greenhouses and gardens.

Senior Year—Seond Term, 3 theoretical and 2 practical periods per week; Third Term, 4 practical periods per week.

269. Research and Thesis. This course is given to test and develop the student's power of observation and initiative. The work will be arranged with each student individually and the results will be written up in the form of a thesis. Upon approval, the student may elect other courses so far as they are available in place of a part or all of the thesis work.

Senior Year—First and Third Term, 4 practical periods per week; Second Term, 4 or 6 practical periods per week.

270. Elementary Pomology. An introductory course dealing with the principles of the subject. It is intended for all students in the two-year course and it is prerequisite to the later courses.

First Year—First Term, 2 theoretical and 4 practical periods per week.

271. Practical Fruit Growing. This course is designed for those students who desire to devote all their allotted time in horticulture to pomology. The entire field will be covered and the subjects treated in all the other courses in pomology will be in-

cluded herein so far as the allotted time and the capacity of the student will permit. Elective.

First and Third Term, 4 theoretical and 8 practical periods per week; Second Term, 2 theoretical and 4 practical periods per week.

272. Commercial Pomology. In this course the methods of gathering, packing and marketing of the various fruits are taken up. Market problems, transportation and shipping associations receive special attention. Advantage is taken of the materials available at this time to study the classification and identification of the leading commercial varieties of apples. The student is also given practical exercises in fruit judging and the selection of fruits for exhibition purposes. Elective.

Second Year—First Term, 2 theoretical and 4 practical periods per week.

273. Practical Fruit Growing. This course is a continuation of course 270 and deals with orchard sites, soils, varieties, companion crops, fertilizers and pruning as practiced in both commercial and home orchards. Elective.

Second Year—Second Term, 1 theoretical period and 2 practical periods per week.

274. Small Fruits. In this course the production of strawberries, bush fruits and grapes is considered. The methods of propagation, selection of sites, soils, pruning, training and cultivation are discussed. Elective.

Second Year—Third Term, 2 theoretical and 4 practical periods per week.

VEGETABLE GARDENING.

COURSES OFFERED.

280. Home Vegetable Gardening. This course includes the general principles of vegetable gardening; the production of vegetables for home use; the location, planning and management of the garden. The laboratory work includes a study of vegetable seeds, germination tests, growing early plants and their care in

the greenhouses and cold frames until they are planted in the "Farmers Garden." Here the students assume full charge of the plantings and keep records of the work done on each vegetable.

Sophomore and Senior Year—Second Term, 2 theoretical and 4 practical periods per week; Third Term, 1 theoretical period and 4 practical periods per week.

281. VEGETABLE FORCING. A course which treats of the principles and practice of forcing vegetables in greenhouses, hotbeds and cold frames. All of the vegetables that are used for forcing are considered, and also their grading, packing and marketing. A definite area is allotted to each student who is then required to put into practice the knowledge gained in the classroom by planning, planting and managing the plot throughout the entire forcing season.

Junior Year—First and Second Term, 2 theoretical and 4 practical periods per week; Third Term, 4 practical periods per week.

282. VEGETABLE GARDENING LITERATURE. A course relating to the sources of literature upon vegetable growing; a study of current literature on vegetable gardening and the work with vegetables being carried on at the various experiment stations.

Junior Year—First Term, 2 practical periods per week; Second Term, 1 theoretical period per week.

283. COMMERCIAL VEGETABLE GARDENING. A study of the principles of vegetable growing as applied in commercial production. The course includes the selection of a location, and the equipment, construction and management of hotbeds and cold frames; growing early vegetable plants; field planting; rotation of crops; and irrigation. Cultural directions are given for all the vegetables, including their requirements, varieties, tillage, enemies, grading, packing and marketing. Each student is allotted definite areas in the field and greenhouses and is required to plan, plant and manage them throughout the year. Trips are taken to markets and vegetable farms.

Senior Year—First Term, 1 theoretical period and 4 practical periods per week; Second and Third Term, 2 theoretical and 4 practical periods per week.

284. VEGETABLE GROWING FOR THE CANNING INDUSTRY. A course dealing with the principal vegetables grown for commercial

canning; cultural directions for these crops; and the home canning of surplus products. Practical work will consist in canning small amounts of vegetables in tin cans and glass jars.

Senior Year—First Term, 1 theoretical period and 2 practical periods per week.

285. SYSTEMATIC OLERICULTURE. This course includes a systematic and descriptive study of the leading varieties of the most important vegetables, their origin and botany; adaptation of the various varieties to different cultural and market conditions; judging and exhibition work.

Senior Year—First and Third Term, 1 theoretical period and 4 practical periods per week; Second Term, 4 practical periods per week.

286. MARKET GARDENING. This course considers essentially the same problems in commercial vegetable growing as contained in course 283 but in a briefer way. Cultural directions are given for the most important crops. The practical work includes the growing of early vegetable plants under glass and field planting of the early vegetables. The students assume full charge of the plantings.

Senior Year—Third Term, 2 theoretical and 4 practical periods per week.

287. RESEARCH AND THESIS. The prime object of this work is to test the student's power of observation and initiative. Each student will be required to select some special line of research in vegetable gardening and submit the same to the head of the Department for approval not later than April 1st of the Junior year. The results must be written up in the thesis which is required for graduation.

Senior Year—First Term, 4 practical periods per week; Second Term, 4 or 6 practical periods per week; Third Term, 1 theoretical period and 4 practical periods per week.

288. HOME VEGETABLE GARDENING. The general principles of vegetable gardening as applied to the growing of vegetables for home use. The laboratory work includes a study of vegetable seeds, seed testing, seed sowing, transplanting and the care of plants in the greenhouses and cold frames. The students are re-

quired to plan, plant and manage a large home garden until the end of the term.

First Year—Second Term, 1 theoretical period and 2 practical periods per week; Third Term, 2 theoretical periods and 4 practical periods per week.

289. COMMERCIAL VEGETABLE GROWING. A study of the principles of vegetable gardening as applied to the growing of vegetables for market and for canning. The course includes the construction and management of hotbeds and cold frames, growing early vegetable plants, soil preparation, sowing and planting, cultivation, harvesting, grading, packing, marketing, canning and storage. Each student is allotted a definite area and is required to plan, plant and manage it. Elective.

Second Year—First Term, 1 theoretical period and 2 practical periods per week; Third Term, 2 theoretical and 4 practical periods per week.

290. VEGETABLE FORCING. A course which deals with the principles and practice of forcing vegetables in greenhouses, hotbeds and cold frames. The most important forcing crops are considered. Each student is assigned a definite plot in the greenhouses and frames, and is required to plan, plant and manage it. Elective.

Second Year—First and Second Term, 1 theoretical period and 2 practical periods per week.

291. ADVANCED VEGETABLE GARDENING. Second year students who elect to spend the entire time scheduled for horticulture in vegetable gardening, will be given a course which includes the subjects considered under courses 289 and 290, but the problems arising in the different phases of commercial vegetable growing will be treated in a more thorough manner. It also includes a systematic study of some of the most important commercial varieties. Trips will be taken to markets and vegetable farms. Elective.

Second Year—First and Third Term, 4 theoretical and 8 practical periods per week; Second Term, 2 theoretical and 4 practical periods per week.

LANDSCAPE GARDENING AND FLORICULTURE.

COURSES OFFERED.

300. PRINCIPLES OF LANDSCAPE GARDENING. This course has been arranged for the purpose of giving the student a broad knowledge of the various types of landscape gardening and the principles which underlie them. Lectures and field trips.

Sophomore Year—Second Term, 1 theoretical period and 2 practical periods per week.

301. ORNAMENTATION OF HOME GROUNDS. A continuation of course 300, giving special attention to the improvement of home grounds. Field trips and reports.

Sophomore Year—Third Term, 4 practical periods per week.

302. HISTORY OF LANDSCAPE GARDENING. A reference course dealing with the literature and the different stages in the development of the art. Collateral reading and reports.

Junior Year—First Term, 2 practical periods per week.

303. FLORICULTURE. Preparation of soils, potting, watering, ventilating and fumigating as applied to greenhouse crops. Lectures, practical work in greenhouses, field trips and reports.

Junior Year—First Term, 2 theoretical and 4 practical periods per week.

304. COMMERCIAL FLORICULTURE. Greenhouse plants and flowers; culture; and methods of handling and marketing for wholesale and retail markets. Lectures, practical work, trips to leading growers in this section, and reports.

Junior Year—Second Term, 3 theoretical and 4 practical periods per week.

305. COMMERCIAL FLORICULTURE. Continuation of course 304.

Junior Year—Third Term, 2 theoretical and 6 practical periods per week.

306. GREENHOUSE CONSTRUCTION. Types of forcing structures, their location, arrangement and construction; cost; methods of heating and ventilating. Lectures, drawing plans, specifications and practical work in construction.

Senior Year—First Term, 2 theoretical and 4 practical periods per week.

307. Landscape Design. This course deals with the composition of gardens, private estates and related problems. Simple problems involving the use of topographic surveys, drainage and grading plans. Lectures, drafting and collateral reading.

Senior Year—First Term, 2 theoretical and 4 practical periods per week.

308. Civic Art. A study of the principles of city planning and their application to city, town and rural improvement. Lectures and collateral reading.

Senior Year—First Term, 2 theoretical periods per week.

309. Landscape Design. Continuation of course 307. More complex problems are studied, including public parks and playgrounds. Planting plans and designs.

Senior Year—Second Term, 2 theoretical and 4 practical periods per week.

310. Landscape Practice. Grading plans and construction drawings, estimates, specifications and contracts.

Senior Year—Second Term, 4 practical periods per week; Third Term, 1 theoretical period and 4 practical periods per week.

311. Plant Materials. Trees, shrubs and herbaceous plants. Their characters, soil requirements, arrangement and planting.

Senior Year—Second Term, 2 theoretical and 2 practical periods per week.

312. Floral Decoration. Plants and cut flowers. Their arrangement in baskets, designs, bouquets, table and house decorations.

Senior Year—Second Term, 1 theoretical period and 4 practical periods per week.

313. Garden Flowers. Annuals, bulbous plants and herbaceous perennials grown in the home garden for cut flowers and ornamental planting.

Senior Year—Third Term, 2 theoretical and 4 practical periods per week.

314. Tree Repair. Methods of treating trees and shrubs to control attacks of insect and fungus enemies and to repair injury due to them. Technical details in pruning, bracing, treatment of wounds, and cavity filling.

Senior Year—Third Term, 1 theoretical period and 4 practical periods per week.

315. AMATEUR FLORICULTURE. Plants and flowers for the window and home garden, soils, fertilizers, containers, potting and shifting of plants.

Senior Year—Third Term, 2 theoretical and 4 practical periods per week.

316. PLANT PROPAGATION. This course takes up seedage, layering, cuttings, buds and grafts. Special attention is given to ornamental plants for home decoration.

First Year—Second Term, 2 theoretical and 4 practical periods per week.

317. FLORICULTURE. This course takes up the various phases of greenhouse management, and includes preparation of soils, potting, watering, and ventilating. Elective.

Second Year—First Term, 2 theoretical and 4 practical periods per week.

318. PRINCIPLES OF LANDSCAPE GARDENING. A study of the various styles of landscape gardening and the principles which underlie them. Their application to the ornamentation of home grounds is also considered. Elective.

Second Year—First Term, 2 theoretical and 4 practical periods per week.

319. COMMERCIAL CROPS. Methods of growing and marketing plants and cut flowers for wholesale and retail markets. Elective.

Second Year—Second Term, 1 theoretical period and 2 practical periods per week.

320. ORNAMENTATION OF HOME GROUNDS. This course takes up the principles of landscape gardening and their application to the home grounds. Elective.

Second Year—Second Term, 1 theoretical period and 2 practical periods per week.

321. COMMERCIAL CROPS. Continuation of course 319. Elective.

Second Year—Third Term, 2 theoretical and 4 practical periods per week.

322. GARDEN FLOWERS. Annuals, bulbous plants and herbaceous perennials suitable to planting in the home garden for cut flowers and ornamentation. Elective.

Second Year—Third Term, 2 theoretical and 4 practical periods per week.

FORESTRY.

The instruction in forestry is planned to give to the student, who is fitting himself to take up the practical problems of farm management, a sufficient knowledge of the principles of forestry to enable him to apply to the wood lot or timber tract, which is a part of practically every farm, the same degree of intelligent direction which he is prepared to give to the tilled lands and thus obtain equally satisfactory results.

COURSE OFFERED.

320. FARM FORESTRY. This course includes forest botany, wood-management, measurement, valuation and utilization of forest crops, fire protection, nursery practice and tree planting. Lectures and field work.

Senior and Second Year—Third Term, 2 theoretical and 4 practical periods per week.

LANGUAGES.

PROFESSOR SPENCE.
MR. SCHULZ.

The Department of Languages embraces the study of three branches: Latin, German and French. All students are required to take the courses in German or French. Students may elect to take Latin in the Freshman year in place of history, provided that they have completed the work outlined for the Sub-Freshman Class or its equivalent.

The course of study in Latin is given with two ends in view—first, to train the mind into accurate and close methods of reasoning; second, to give the student a more thorough and comprehen-

sive knowledge of his own language than he could otherwise acquire. Special attention is paid to Latin forms and terminations and to the derivation of English words from Latin roots.

So large a proportion of modern scientific literature is in German and French that a reading knowledge of these languages has become almost essential to the student pursuing advanced courses in the various spheres of scientific research. Instruction in these branches is given, therefore, to enable the student to translate intelligently the works of French and German masters in the domain of science, for, frequently there are no English versions of their works. As the student becomes more familiar with foreign scientific terms and construction, he is required to translate treatises bearing upon the special line of work which he may be pursuing.

LATIN.

COURSES OFFERED.

340. SYNTAX AND TRANSLATION. Reading of Caesar and Sallust with prose composition selected from the text read.

Text-books: Smith's "Latin Lessons," Harper and Tolman's "Commentaries of Caesar," and Scudder's "Sallust."

Freshman Year—3 theoretical periods per week.

341. MYTHOLOGY, TRANSLATION AND LITERATURE. Reading of Virgil and Horace with lectures on mythology and Latin literature. Elective.

Text-books: To be selected later.

Sophomore Year—First and Second Term, 5 theoretical periods per week; Third Term, 4 theoretical periods per week.

342. ELEMENTARY LATIN. Elective.

Sub-Freshman Year—3 theoretical periods per week.

GERMAN.

COURSES OFFERED.

360. GRAMMAR AND CONVERSATION.

Text-book: Bacon's "German Grammar."

Freshman Year—3 theoretical periods per week.

361. TRANSLATION.

Text-books selected from the following: Hauff's "Das Kalte Herz," Schiller's "Der Neffe als Onkel," Wildenbruch's "Das Edle Blut" and "Der Letzte," Hillern's "Hoher als die Kirche," Grandgent's "Ali Baba and the Forty Thieves," Sybel's "Die Erhebung Europas," Walther's "Algemeine Meereskunde," Brant and Day's "Scientific German," Wallentin's "Grundzuge der Naturlehre," Moser's "Der Bibliothekar."

Sophomore Year—3 theoretical periods per week.

362. TRANSLATION. Selected readings from various literary and scientific texts and periodicals.

Junior Year—3 theoretical periods per week.

Senior Year—3 theoretical periods per week.

363. GRAMMAR AND CONVERSATION.

Text-book: To be selected.

Sub-Freshman Year—4 theoretical periods and 1 practical period per week.

FRENCH.

COURSES OFFERED.

380. GRAMMAR AND COMPOSITION.

Text-book: Chardenal's "Complete French Course" (Revised), Aldrich & Foster's "Elementary French" and "French Reader," Super's "French Reader," and selected texts.

Freshman Year—3 theoretical periods per week.

381. TRANSLATION. Selections from standard authors.

Sophomore Year—3 theoretical periods per week.

382. TRANSLATION. Advanced text selected. Readings from various scientific texts and periodicals.

Junior Year—3 theoretical periods per week.

Senior Year—3 theoretical periods per week.

383. GRAMMAR AND COMPOSITION.

Text-book: To be selected.

Sub-Freshman Year—4 theoretical periods and 1 practical period per week.

MATHEMATICS.

PROFESSOR HARRISON.

MR. SPRINGER.

Mathematics is the basis upon which scientific information rests. A knowledge of the study is necessary, as much from the utilitarian point of view as from the mental training its acquisition gives. Its importance as a factor in our College course takes its rise from the former consideration. All instruction in this work is with a view to the equipping of students for the more practical work soon to follow.

The class work in mathematics in the several courses consists of arithmetic, accounting, algebra, geometry (plane and solid), trigonometry, analytic geometry, differential and integral calculus, and their application to mechanics, engineering, physics and surveying.

COURSES OFFERED.

400. TRIGONOMETRY. Deduction of formulas and practical applications of same in the solution of right and oblique triangles, etc.

Text-book: Wentworth.

Freshman Year—First Term, 5 theoretical periods per week. Second Term, 2 theoretical periods per week.

401. ADVANCED ALGEBRA. Elementary theory of equations, partial fractions, etc.

Text-book: Taylor.

Freshman Year—Second Term, 3 theoretical periods per week.

402. ANALYTICAL GEOMETRY. Geometry of two and three dimensions, loci of general equations of second order, higher plane curves, etc.

Text-book: Riggs.

Freshman Year—Third Term, 5 theoretical periods per week.

Sophomore Year—First Term, 5 theoretical periods per week.

403. CALCULUS. A discussion of the methods used in differentiation and integration, and the application of these methods in determing maxima and minima, areas, volumes, moments of inertia, etc.

Text-book: Bowser.

Sophomore Year—Second Term, 5 theoretical periods per week; Third Term, 4 theoretical periods per week.

Junior Year—First Term, 5 theoretical periods per week.

404. FARM ACCOUNTS. Brief course.

First Year—First Term, 2 theoretical periods per week.

405. ALGEBRA. A thorough course in elementary algebra.

Text-book: Wentworth—Smith.

Sub-Freshman Year—4 theoretical periods per week.

406. PLANE GEOMETRY. Books one to five, inclusive.

Text-book: Wentworth.

Sub-Freshman Year—First and Second Term, 4 theoretical periods per week.

407. SOLID GEOMETRY. Books six to eight, inclusive, with selected practical problems. Elective .

Text-book: Wentworth—Smith.

Sub-Freshman Year—Third Term, 4 theoretical periods per week.

408. FARM ARITHMETIC. Theory and practice. Elective.

Sub-Freshman Year—Third Term, 4 theoretical periods per week.

MECHANICAL ENGINEERING.

PROFESSOR GWINNER.

ASSOCIATE PROFESSOR CRISP.

MR. WARTHEN.

This Department offers a Course in Mechanical Engineering leading to the degree of Bachelor of Science in Mechanical Engineering. The list of all subjects required to be completed to obtain this degree is given on page 109. It prepares young men to design and construct machinery, to superintend engineering establishments, to become superintendents of construction and to teach mechanical engineering and manual training. For degree of Mechanical Engineer see page 123.

The record of its graduates shows that the course is equipping such for immediate usefulness in the technical field.

Instruction is given by means of lectures and recitations, accompanied by a large amount of practice in the drafting rooms, shops and experimental laboratory.

The program of the Department is arranged to embody the two-fold belief that a thorough training is best secured by a study of the practical application of the principles involved, as well as of the principles.

EQUIPMENT. The Mechanical Engineering Laboratories are situated in the engineering building, which contains the wood-working and machine shops, drafting and lecture rooms, foundry and blacksmith shops as well as the College power plant.

The wood-working shop contains accommodations for bench work and wood turning. The power machinery in this shop is a band and universal circular saw, five 12-inch turning lathes, one 16-inch by 10-foot pattern maker's lathe, a grindstone, wood trimmer, 26-inch wood planer and universal tool grinder.

In the forge shops are sixteen power forges, two hand forges and a pressure fan and exhauster for keeping the shop free of smoke. There is a full assortment of smith's tools for each forge.

The foundry is equipped with an iron cupola, which melts 1,200 pounds of iron per hour, a brass furnace, one core-oven and the necessary flasks and tools.

The machine shop equipment consists of one 10-inch speed lathe, one 22-inch engine-lathe with compound rest, one 12-inch combined foot and power lathe, two 14-inch engine-lathes, one 24-inch drill press, one No. 4 emery tool grinder, one No. 1½ universal milling machine, and an assortment of vises, taps, dies, pipe-tools and measuring instruments.

The machinery of the pattern and machine shops is driven by a 9 by 14-inch automatic cut off, high speed engine, built by members of the Junior and Senior Mechanical Engineering Classes, after the standard design of the Atlas engine. An 8 by 12-inch engine drives the machinery of the blacksmith shop and foundry. It was presented to the College by the City of Baltimore, and secured through the efforts of Rear-Admiral John D. Ford, United States Navy, retired.

The experimental laboratory contains: A hundred thousand pound Riehle combined hand and power testing machine for making tensile, compression, shearing and transverse tests on various kinds of materials, turbo-generator set, consisting of a Curtis steam turbine and thirty-five K. W. General Electric compound wound generator for making steam and electric efficiency tests. This set is connected with the general lighting system of the College so that any time it may be tested to its capacity. It may also be used for lighting purposes if necessary. A cross compound condensing Corliss engine of fifty horse-power, equipped with brake, indicators, relief valves, reducing motion, steam and vacuum gauges, and speed indicator, gives ample opportunity for steam consumption and brake tests. This is connected with the shops, so that any time it may be switched on and drive them. The College power plant with its vacuum heating system, three one-hundred horse-power return tubular boilers, and two electric generating units offer unexcelled opportunities for experimental work. A six horse-power, four-cycle gasoline engine equipped with prony brake permits of making tests in gas engineering.

The three drafting rooms are well equipped for practical work. Two of these are used by the Junior and Senior Classes, each student being provided with a separate desk. The third room is used jointly by the Freshman and Sophomore students and contains fifteen drawing tables, accommodating about ninety students.

Engineering students are to provide themselves with approved drawing outfit, materials and book; the cost of which during the Freshman Year amounts to about $15.00. The cost to other students taking mechanical drawing is about $5.00. The College does not furnish these, but they are purchased by the student and are his property.

The combined blue print and dark room with its commodious printing frames affords splendid opportunities for sun printing, which is so useful to engineering students.

Tours of Inspection. The proximity of the College to Baltimore, Washington and Philadelphia, with their great industrial enterprises, offers unexcelled opportunities to engineering students to acquaint themselves practically with what is being done in mod-

ern engineering construction. Upon trips of inspection an instructor accompanies the class and explains the different processes, plants and machines.

COURSES OFFERED.

420. FREEHAND DRAWING. Elementary practice; lettering; excises in sketching, both in pencil outline and pencil rendering; line drawing, composition, proportion, and comparative measurements; exercises in sketching of technical objects; and pen and ink shading. Plates upon completion are bound and properly titled.

Freshman Year—First Term, 4 practical periods per week.

421. MECHANICAL DRAWING. Practice in plain lettering, use of instruments, projection and simple working drawings, the plates upon completion being enclosed in covers properly titled by the students. Instruction is given in this subject during the Junior year to students in the Agricultural and Horticultural Courses and is modified to meet their needs.

Text-book: Tracy's "Mechanical Drawing."

Freshman Year—4 practical periods per week.

Junior Year—First Term, 4 practical periods per week.

422. TECHNICAL INSTRUCTION. Explanation of the reading of mechanical drawings; the proper cutting angles, care and adjustment of carpenter tools; relative strength of wood joints; wood, its shrinking and warping, and how to correct and prevent. Drill in problems in arithmetic, algebra and drawing by notes and lectures.

Text-book: Goss' "Bench Work in Wood."

Freshman Year—First Term, 2 theoretical periods per week.

423. WOOD WORK. During the First Term is taught the use and care of bench tools, exercise in sawing, mortising, tenoning and laying out work from blue prints. The Second Term is devoted to projects involving construction, decoration and wood turning. During the Third Term the principles and process of pattern making are taught, together with enough foundry work to demonstrate the uses of pattern making. Instruction in this course is given to the agricultural and horticultural students in the Junior year and covers types of wood work used on the farm.

Freshman Year—First Term, 6 practical periods per week; Second and Third Term, 4 practical periods per week.

Junior Year—Second Term, 4 practical periods per week.

424. DESCRIPTIVE GEOMETRY. Detailing of machinery and drawing to scale from blue prints. Tracing and blue printing, and representation of flat and round surfaces by ink shading. Its relation to mechanical drawing and the solution of such problems relating to magnitudes in space as bear directly upon those which present themselves to civil, electrical and mechanical engineers.

Text-book: Anthony and Ashley's "Descriptive Geometry," and Notes on Empirical Design.

Sophomore Year—First Term, 4 practical periods per week; Second Term, 3 theoretical and 4 practical periods per week; Third Term, 2 theoretical and 2 practical periods per week.

425. BLACKSMITHING. The making of the fire and how to keep it in order. The operations of drawing-out, upsetting and bending of iron and steel, including the calculations of stock for bent shapes. Welding. Construction of steel tools for use in the machine shop, including tool dressing and tempering. Annealing.

Sophomore and Junior Year—First and Second Term, 4 practical periods per week.

426. TECHNICAL MECHANICS. Elementary principles of applied mechanics, calculations of gear and pulley trains, bent levers, calculation of belt lengths, lacing belts, the suction pump, and bolts and screws.

Text-book: Jamieson's "Mechanics."

Sophomore Year—Second Term, 2 theoretical periods per week.

427. FOUNDRY WORK. Moulding in iron and brass. Core making. The cupola and its management. Lectures on the selection of irons by fracture, fuels, melting and mixing of metals.

Sophomore Year—Third Term, 8 practical periods per week.

428. STEAM ENGINES, BOILERS AND DYNAMOS. The principles of steam and the steam engine. The slide valve and valve diagrams. The indicator and its diagram. Steam boilers, the various types and their advantages. Each student taking this course is required to spend certain hours in the power plant actually operating the engines, boilers and dynamos. The theory of dynamos is given in courses 184 and 185.

Text-book: Allen and Bursley's "Heat Engines."

Sophomore Year—Third Term, 3 theoretical periods per week.

429. ELEMENTARY MACHINE DESIGN. Freehand sketching of the details of machinery and making working drawings of same. Calculations and drawings of a simple type punching press.

Text-book: Hoffman's "Machine Design." Empirical designing.

Junior Year—First Term, 1 theoretical period and 4 practical periods per week; Second Term, 2 theoretical and 4 practical periods per week; Third Term, 3 theoretical and 8 practical periods per week.

430. MACHINE WORK. Elementary principles of vise and machine work, which includes turning, planing, drilling, screw cutting and filing. This is preceded by study of the different machines used in the machine shops.

Junior Year—First and Second Term, 4 practical periods per week; Third Term, 12 practical periods per week.

Senior Year—4 practical periods per week.

431. GRAPHIC STATICS. The theory and practice of the method of determining stresses in cranes, roof trusses and bridges, and stress on beams and girders due to traveling loads. Analysis of the stresses in roof trusses by the force polygon. Application of the equilibrium polygon to beams and girders. Analysis of stresses in bridge trusses.

Text-book: Merriman and Jacoby's "Graphic Statics."

Junior Year—Second Term, 4 theoretical periods per week.

432. EXPERIMENTAL ENGINEERING. Determining the amount of moisture in steam; the efficiency of the injector; the transit and its uses; indicator practice and the use of the planimeter; slide valve setting; the slide rule and micrometer; the analysis of boiler feed water; flue gases; lubricating oils; and the determination of the heating value of coals. The efficiency test of a Curtis steam turbine combined with that of an electric generator. The brake test and steam consumption of a cross compound condensing Corliss engine under varying loading. The testing of iron, steel and wood to determine their commercial values. The testing of cement to determine its tensile and compressive strength. The determination of the horse-power, efficiency and gas consumption of a six H. P. gasoline engine. Barrel and throttling calorimeter tests. Determining effi-

ciency of a screw jack. Injector testing. All such tests must be written upon standard forms provided for each student.

Junior Year—Third Term, 4 practical periods per week.

Senior Year—First Term, 4 practical periods per week; Second and Third Term, 8 practical periods per week.

433. STRUCTURAL DESIGN. Analysis of stresses in structural steel buildings, traveling cranes and derricks. Design of crane girders, lattice girders and roof trusses. In addition mechanical engineering students have design of cranes and civil engineering students have design of truss bridges and retaining walls. Both analytical and graphical methods are used, that being used which is best suited to problem. Design of riveted connections. Design of plate girders under dead and live loads.

Text-books: "Cambria Steel," Ketchum's "Steel Mill Buildings," Merriman's "Bridge Design," and Thompson's "Bridge and Structural Design."

Senior Year—First and Second Term, 2 theoretical and 4 practical periods per week; Third Term, 2 theoretical and 6 practical periods per week.

434. MECHANICS OF ENGINEERING. The mechanics of solids, Statics of a material point and of rigid bodies. Chains and cords. Centrifugal and centripetal forces. Work. Power. Energy. Sliding friction, friction of journals, friction of pivots, friction of ropes and belts. Analysis of stresses in thick cylinders.

Text-book: Church's "Mechanics of Engineering."

Senior Year—First and Second Term, 4 theoretical periods per week; Third Term, 3 theoretical periods per week.

435. KINEMATICS OF MACHINERY. Centrodes. Determination of the instantaneous axis and instantaneous center. Preparation of displacement, velocity and acceleration diagrams. Design of cams. Slow advance and quick return motion for machine tools. Form of tooth outlines in the epicycloidal and involute systems.

Text-book: Barr and Wood's "Kinematics of Machinery."

Senior Year—First Term, 1 theoretical period and 4 practical periods per week.

436. THERMODYNAMICS. Laws of fundamental equations; perfect gases; compound, hot-air and gasoline engines; theory of

vapors; relation between pressure, volume, temperature, work and heat for special changes of state; calculation and drawing of Carnot's cycle and temperature entropy diagram. The steam turbine. Compressed air and refrigeration machinery.

Text-book: Mark and Davis' "Steam Tables," Gwinner's "Notes on Gas, Oil and Hot-air Engines," and Moyer and Calderwood's "Engineering Thermodynamics."

Senior Year—First and Third Term, 3 theoretical periods per week; Second Term, 4 theoretical periods per week.

437. FARM MACHINERY. A detailed study of the farm implements. One of the objects of the course is to familiarize the students with the latest improvements in farm machinery. Given by lectures and practical work.

Senior Year—First Term, 2 theoretical and 4 practical periods per week.

438. HYDROMECHANICS. A continuation of course 130. Pumps and pumping machinery. Water supply engineering. Practical consideration of friction of water in pipes. Cost data of machinery. Notes and lectures.

Senior Year—Second Term, 4 theoretical periods per week.

439. DESIGN OF FARM STRUCTURES. The design and arrangement of farm buildings and equipment. Lectures also cover the heating, lighting, ventilation, plumbing and costs. Elective.

Senior Year—Second and Third Term, 2 theoretical and 4 practical periods per week.

440. DESIGN OF FARM MACHINERY. The design and drafting of those portions of farm machinery common to engines, harvesting, pumping and fertilizing machinery such as levers, shafts, gears and frames. Elective.

Senior Year—Second and Third Term, 2 theoretical and 4 practical periods per week.

441. FARM BUILDINGS. Design and specifications of a simple typical building in timber or concrete and lectures upon the details. The course is very practical and latitude is permitted the student to develop his ideas.

Senior Year—Third Term, 1 theoretical and 4 practical periods per week.

442. HEATING AND VENTILATION. The principles of ventilating; amount of heat required for warming; radiating surfaces; steam, hot water and hot air systems; vacuum and vapor systems; pipe and pipe systems, appliances; specifications and contracts.

Text-book: Hoffman's "Heating and Ventilation."

Senior Year—Third Term, 2 theoretical and 4 practical periods per week.

443. SCHOOL ARCHITECTURE. The planning and detailing of moderate priced and medium sized school buildings; including the heating, ventilation, lighting and plumbing.

Senior Year—Third Term, 3 theoretical and 4 practical periods per week.

444. ADVANCED PATTERN MAKING. Practical examples in loose-piece and three-part-flask patterns and in engine patterns.

Senior Year—Third Term, 8 practical periods per week.

445. FARM DRAWING. Geometrical construction, plan and elevation with details of farm gate and plan and elevation of simple farm structures.

First Year—First Term, 4 practical periods per week.

446. FARM WOOD WORK. Use of tools in constructing trestles, gates and frames.

First Year—Second Term, 4 practical periods per week.

447. FARM MACHINERY. A detailed study of the farm implements and their care. Detail of costs of some of the prominent types. Lectures and practical work.

First Year—Second Term, 2 theoretical and 4 practical periods per week.

448. FARM BUILDINGS. Study of general types of such structures. Calculating bill of material from sketches and making estimate of cost.

Second year—First Term, 4 practical periods per week.

MILITARY SCIENCE.

FIRST LIEUTENANT GEORGE T. EVERETT.

The Congress of the United States, subject to certain conditions, appropriates annually a generous sum for each Agricultural College of the United States.

One of the conditions imposed by this grant is that the students shall receive a course of training in Military Tactics. The Government depends partly upon such institutions for the great number of officers that would be needed in time of war to command the Volunteers.

From the view-point of the student, military training develops patriotism, willingness to assume responsibility, knowledge of human nature, and physical and moral courage. It involves the cultivation of thought and action, the subjection of one's self to the restraints of an orderly, systematic life, and to a direct and unselfish honesty. It involves the punctilious practice of dignified deportment, pride in personal appearance, and looking at life from a simple, straightforward standpoint. It develops a youth physically in a uniform, systematic manner, improves his health, and gives him that erect carriage and elastic stride, uplifted chin and the steady unfaltering eye that have come to be recognized the world over as indicating the man of military training.

The object of military training is to teach the student to secure intelligent concentration of effort. The success of any man depends largely upon his ability to enforce his will upon those under him and to cause them to execute his plans with promptness and precision. In everything involving united effort, men must be trained to orderly and concerted action before efficiency may be expected. "System" is merely discipline under another name.

INSPECTION.

The War Department designates an officer of the General Staff of the Regular Army to make an annual inspection of the Military Department of each of the institutions of learning in the United States at which an officer is regularly detailed. There are about one hundred such institutions. This inspector rates these schools according to their status and military efficiency.

ORGANIZATION.

The Corps of Cadets is organized as a battalion of three companies, staff and band, the drill and administration of which conform as far as possible to that of the Regular Army.

INSTRUCTION.

Instruction in the Military Department is a graduated course, starting with the drill that is given the recruit in the United States Army and working up by steps until in his senior year the student receives the instruction given in the United States Army to Non-commissioned Officers and Lieutenants.

There are three hours of practical drill and one period of theoretical instruction each week. All students are required to attend both the drill and instruction unless physically unfit or specially excused by the President of the College. The men excused for any reason may be required to spend the equivalent time in learning the system of accounts, records, etc., which are used in the United States Army, thus fitting themselves for the clerical work so necessary to the Staff Corps.

The practical drill consists of recruit drill, close order, extended order, bayonet exercise, calisthenics, tent pitching, advance guard, rear guard, outposts, infantry attack, withdrawal from position, and the ceremonies of parade, guard mounting, reviews and escort to the Colors. Rifle practice is also taught during this course as far as present facilities will allow.

The theoretical instruction consists of lectures, informal talks and practical demonstration in the following subjects: close order, extended order, fire attack, security and information, marching, patrolling, signalling, guard duty, personal hygiene and first aid, target practice, camp expedients, entrenchments, map reading and sketching, tactical walks, war games, map problems, bridge building, military law, military courtesy and military history and policy of the United States.

With a proper degree of application, every graduate should be able to pass an examination for a Volunteer Commission or to enter the United States Army as a Second Lieutenant.

EQUIPMENT.

The battalion of cadets is equipped with the United States magazine rifle, caliber 30, known as the Krag-Jorgensen, with complete equipment of side arms, cartridge box, etc. The cadet officers and

non-commissioned staff officers are equipped with the regulation West Point cadet sword and sash.

The Government also has supplied the battalion with the new regulation sub-calibre target rifle for gallery practice, and has been very liberal in the allowance of ammunition for gallery practice, of blank cartridges for field exercises, and of ball cartridges for outdoor range practice.

Students are held strictly accountable for all arms and equipment issued to them.

PROMOTIONS.

The officers and non-commissioned officers of the corps are selected with reference primarily to their fitness for the duties they will be required to perform. Their general deportment and proficiency in academic work are also given weight in making such selection.

Commissioned officers are, as a rule, selected from the Senior Class, sergeants from the Junior Class, and corporals from the Sophomore Class.

Cadet officers are required to serve from the beginning of the scholastic year up to March 1, of that year. On this date readjustment of rank is made, based upon the following: Military Efficiency, as evidenced by the fall drills and winter recitations in the Tactical Department; Military Discipline and Soldierly Bearing; General Deportment.

UNIFORM.

The uniform worn by all members of the battalion of cadets is the regulation West Point fatigue uniform, and is made of the best Charlottesville gray cloth. The uniform consists of the gray fatigue blouse, trousers and cap for all military formations. By special contract with one of the largest Military Equipment houses in the United States, the uniform is furnished at a very low price. Measures for this uniform are taken as soon as the student arrives at College, and fit is guaranteed. For summer use there must also be provided two gray shirts, a pair of leggins, a waist belt, and a black tie.

White gloves, collars, caps and other military accessories may be purchased at the stores near the College, or from the contractor who furnishes the uniforms.

Information concerning the cost of uniforms, etc., may be found on page 130.

PHYSICAL CULTURE.

DIRECTOR BYRD.

Owing to the unusual conditions of the last four years, which have compelled absolute concentration of the College work, the required classes in the gymnasium have been temporarily discontinued. Recent appropriations by the Legislature for building construction will alleviate this condition and it will be only a short while now before the regular routine can be resumed. In the meantime everything possible has been and is being done to interest the students of all classes in outdoor sports. The College has expended considerable sums of money for equipment to enable large numbers of the students to take part in the several branches of outdoor athletics. This development is supplemented by class instruction in hygiene and the care of the person in relation to the physical and mental welfare. A complete course in corrective and general physical culture, to be supplemented by lectures in personal hygiene, is now being mapped out for use in the future. A system of exact measurements is to be used which will show the progress of the various students during each year. The course will be compulsory. For outline of course now given see page 112.

SUB-COLLEGIATE INSTRUCTION.

PROFESSOR HARRISON.
PROFESSOR RICHARDSON.

This Department was established in 1892, and reorganized in 1915; and is designed to meet the requirements of those students

who have not had the advantage of a thorough high school training, with a view to equipping them to enter the regular collegiate department.

Only such students are desired as will be able to enter the Freshman Class within a year, and who are fifteen years of age. This course is recommended specially to students who have not been to school for several years; for their progress in the regular collegiate course, by virtue of such a drawback, would be seriously impeded. It is to be remarked that as a rule the students who have taken this course make excellent progress in their later college work. Students in this Department are subject to the same military regulations as other students.

This Department will be eliminated July 1, 1918.

For outline of courses see page 112.

VETERINARY SCIENCE.

PROFESSOR BUCKLEY.

This Department offers instruction in the elements of veterinary science. The course embraces the study of the external form as well as the internal structure and functions of the domesticated animals. It is intended to supplement animal husbandry instruction, and does not have for its object the training of students for veterinary practice. The preservation of health in animals is more aimed at than their restoration from disease. When studiously pursued the courses offered are of great value to the breeder, feeder or manager of live stock.

COURSES OFFERED.

The accompanying brief descriptions indicate the scope of the different courses.

480. ANATOMY AND PHYSIOLOGY. This course embraces a general consideration of the structure and functions of the animal body, with especial reference to animal production and dairying.

Senior Year—Second Term, 3 theoretical periods per week.

481. ANIMAL DISEASES. A study is made of the diseases of the domesticated animals with emphasis upon sanitation, practical bac-

teriology, nursing, administration of medicine and use of common medicinal substances. The aim of this course is to enable the student to perceive the early appearance of diseases and care for them intelligently under proper veterinary supervision.

Senior Year—Third Term, 3 theoretical and 4 practical periods per week.

482. ANIMAL DISEASES. A briefer course in animal diseases is offered to the students in the two-year Agricultural Course.

Second Year—Second Term, 3 theoretical and 2 practical periods per week.

THE COLLEGE LIBRARY.

DR. SILVESTER.

MISS CONNER.

The College Library may be properly regarded as one of the departments of the institution, as its aid for purposes of reference and its influence upon the mental development of the students must always be felt throughout all courses. The present quarters of the Library, while adequate for its immediate needs, will necessarily be too limited in the course of time. The reading room is well arranged and lighted, and is in all respects comfortable and convenient.

While the Library is not large, the collection of works has been carefully chosen, and the shelves contain a fair supply of works of reference, history, biography, essays, poetry and the standard works of fiction. Several thousand volumes of bound United States Government Reports comprise an important addition to the reference works of the Library. Most of the leading magazines and a number of newspapers are subscribed for; technical periodicals and works of reference relating to specific branches are deposited in the libraries of the various departments.

The works in the Library are classified according to the modern Dewey Decimal System of classification. As rapidly as possible the sets of Government Reports that are most valuable are being completed and catalogued. At present there are on hand completed to date, or nearing completion, sets of the reports and bulletins of

the United States Agricultural Department, the Geological Survey, the Fish Commission, the Smithsonian Institution, the National Museum, the Bureau of Ethnology, the Bureau of Education, the Labor Bureau, the Census Bureau and the Bureau of American Republics. There are also nearly completed sets of the Consular Reports, Special Consular Reports, the Engineers' Reports of the United States Army, the War of the Rebellion Records and Messages and Documents, besides many other miscellaneous publications of great value. Many valuable State publications are also on file.

It is the aim of the Librarian to render all these valuable works available for easy reference by the students.

Grateful acknowledgment is made to the officers of all the departments and bureaus above noted for their publications, and especially to the United States Superintendent of Documents, through whose aid many public documents have been received. Thanks are likewise due the following for valuable additions to the Library: Johns Hopkins University, the Geological Survey, the Weather Service, the Highway Commission, and the Bureau of Statistics and Information. Special thanks are due the county press for their liberality in sending their publications free to the Library.

YOUNG MEN'S CHRISTIAN ASSOCIATION.

MR. DARROW.

Aims.

Service, first, last and all the time is the aim of the Y. M. C. A. It attempts nothing through selfish motives, but through the desire to turn into right channels a boy's surplus energy.

Nature.

The Maryland State College Association is affiliated with the International Y. M. C. A. and membership in the local branch carries with it a welcome to all city and student associations, and during vacation periods, entitles the holder to many of the privileges of the city Y. M. C. A.

Officers.

For the first time a salaried secretary is in charge of the Y. M. C. A. organization. He works through and with a student cabinet, having a President, Vice-President, Recorder, Treasurer, and chairmen of the following committees: Employment, Membership, Social Affairs, Music, Publications and Bible Study.

The Employment Committee assists students in finding the kind of work they want, acting as a clearing house for employer and employee.

The Membership Chairman's duties are as the title indicates. The Social Chairman plans receptions, banquets, and social affairs affording a pleasant evening's entertainment to all. The Music Chairman obtains special music for Sunday and other meetings, and the Publications Chairman keeps the public informed.

Regular Meetings.

The Bible Study Chairman organizes bible and special problem study classes, and endeavors to interest the student in unselfish ideals.

Special speakers on both popular and religious subjects, are provided for Sunday 3:30 meetings. The proximity to Washington makes it possible to obtain the best of talent, Representatives, Government officials, worth-while business men, and Ministers of power, thus making the meetings of great value.

Location.

The Y. M. C. A. is located in Calvert Hall. It has beautiful quarters; a game room, furnished with all kinds of games, a pool room, a reading and writing room, and an office for the Secretary. A good readable line of books having a sane, helpful, moral tone make the reading room attractive.

New Students.

Receptions are given to get the new men acquainted with the student body and with the members of the faculty, so as to make them feel "at home."

New students are given special attention, warned of dangers and guided to harmless but interesting methods of "letting off steam" without scorching their moral fibre.

A handbook is published, giving the student detailed information about the College, its societies and activities. Upon request it will be mailed to you free of charge.

The Association welcomes at all times suggestions for its betterment and extension of its service.

COURSES OF STUDY.

In order to systematize the work of the different departments of the College, and as far as possible arrange for specialization within limits consistent with the normal development of individual students, several distinct courses of study have been prepared, one of which the student is expected to choose upon entering the regular College work.

These courses are Agricultural Education, Agronomy, Animal Husbandry, Horticulture, Biology, Chemistry, Canning, General Science, Civil Engineering, Electrical Engineering, Mechanical Engineering, Rural Engineering, and Engineering Education.

A continuous and progressive course of work, beginning in the Freshman year, with a nearly uniform course for all students, and gradually separating in the three succeeding years until the class work is almost wholly specialized, has been found to be most satisfactory. A broad and liberal foundation in English, mathematics and history is laid in the Freshman and Sophomore years, and then the particular line of study desired is emphasized more and more until the end of the course.

In addition to the regular collegiate courses, a two-year Course is given in Agriculture. Many electives are offered in the second year.

There is also a Course in Sub-Collegiate Instruction for the benefit of students unable to obtain elsewhere adequate preparation for entrance into the Freshman Class.

Short Winter Courses in Agriculture, Horticulture and Engineering are given for the benefit of those who find it impossible to afford the time necessary for an extended course in these subjects.

The College, in co-operation with the State Department of Education, conducts a six-weeks' SUMMER SCHOOL, beginning this year on June 20th.

The purpose of the SUMMER SCHOOL is to provide a course of vocational training for teachers and prospective teachers of rural and graded schools. The work offered this year includes courses in Elementary Agriculture, Domestic Science and Art, Industrial Hand Work, Theory and Practice of Teaching, History of Mary-

land, State and National Constitutions, Chemistry, Physics, Surveying, Botany, Zoology and Entomology

A bulletin giving a full description of the courses is issued by the College. For full information address the Director of the Summer School.

A SUMMER SCHOOL for MINISTERS will be held from July 24th to August 1st for those who wish to broaden their field of service in the communities in which they labor. Courses will be given in Rural Sociology, Rural Economics, Religious Pedagogy and Agriculture. Further information concerning these courses may be obtained from Professor F. B. Bomberger, Dean of the Division of Rural Economics and Sociology.

A CONFERENCE on COUNTRY LIFE will be held for MINISTERS on August 2nd, 3rd and 4th. Leaders of national reputation will present matters of vital interest to the Church. Bulletins containing complete information concerning this Conference may be obtained upon request from Mr. B. H. Darrow, Secretary of the Young Men's Christian Association.

In the tabular statements of the courses the periods per week are given, the numbers in parenthesis denoting practical or laboratory periods, the others theoretical or recitation periods.

AGRICULTURAL EDUCATION COURSE.

The Course in Agricultural Education is arranged to give the student a broad general knowledge of agriculture, languages, science and pedagogy.

Students taking this course receive practically the same work during the first two years as those of the other agricultural courses. In the Junior and Senior years the agricultural work is continued, in addition to the special work in pedagogy and practice teaching which these students receive. Enough of agriculture is included in the course to enable the student to carry on farm operations in a scientific manner. The graduate is fitted not only to teach and supervise the teaching of agricultural subjects, but to manage school demonstration farms or conduct a farm of his own.

Students taking this course will be required to spend at least eight weeks of the summers following the Sophomore and Junior years in actual farm work on their home farms or on other accredited farms under the supervision of the College. All students will be required to keep notes and on their return to College to submit a written report of the summer's work and observations.

Agricultural Education Course.

Subject.	Term. I	Term. II	Term. III
Freshman Year.			
Plane Trigonometry 400..	5	.....	.....
English 220.....	4(2)	4(2)	4(2)
History 160.....	3*	3*	3*
Latin 340.....	3*	3*	3*
German 360 !	3**	3**	3**
French 380 !	3**	3**	3**
Agronomy 20.....	.....	.....	3(2)
Animal Husbandry 40 ...	1(4)	.....	.....
Animal Husbandry 41 ...	.....	3(4)	.....
Botany 60.....	.....	.....	2(6)
Zoology 240.....	2(4)	2(4)	.....
Chemistry 80.....	.....	4(2)	4(2)
Freehand Drawing 420...	(4)	.....	.....
Military Instruction	1(4)	1(4)	1(4)
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
Junior Year.			
Mechanics and Sound 200, 203.....	2(4)	.....	.....
Electricty and Magnetism 201, 204	.....	2(4)	.....
Heat and Light 202, 205...	.....	.....	2(4)
Advanced Composition 223	1(2)	1(2)	1
Public Speaking 224.....	(2)	(2)	(2)
Civil Government 140.....	3	3	.....
Business Law 141.....	.....	.....	3
Psychology 1.....	4(2)	.....	.....
History of Education 2 ...	.....	4	.....
Principles of Education 3.	.....	.....	4
Grain Judging 25.....	.....	(4)	.....
Animal Nutrition 43.....	.....	3	2(4)
Stock Judging 46.....	.....	.....	2(4)*
Fruit Judging 262.....	(2)*	.....	.....
Landscape Gardening 302.	(2)*	.....	.....
Vegetable Pathology.....	.....	.....	2(4)*
Geology 86.....	2(2)	.....	.....
Organic Chemistry 87.....	4	.....	.....
Bacteriology 100	.....	(8)	(8)*
Surveying 126.....	.....	.....	2(4)
Mechanical Drawing 421..	(4)	.....	.....
Woodwork 423.....	.....	(4)	.....
Military Instruction.....	1(4)	1(4)	1(4)

Subject.	Term. I	Term. II	Term. III
Sophomore Year.			
Composition 221.....	1(2)	1(2)	1(2)
Public Speaking 222.	(2)	(2)	(2)
German 361..,.....	3*	3*	3*
French 381.....	3*	3*	3*
Farm Crops 21.....	2(2)	.....	.....
Soils 22.....	2(4)	2(4)	.....
Fertilizers 23.....	.....	.....	2(4)
Pomology 260.....	1(4)	.....	2(2)
Vegetable Culture 280.....	.....	2(4)	1(4)
Landscape Gardening 300..	.....	1(2)	.....
Home Grounds 301.....	.....	.....	(4)
Plant Histology 61.....	1(6)	.....	.....
Plant Physiology 62.	.....	2(4)	1(4)
Entomology 242.....	.....	.....	2(4)
Chemistry 81.....	2(6)	.....	.....
Quantitative Analysis 83...	.....	1(8)	.....
Military Instruction.....	1(4)	1(4)	1(4)
Senior Year.			
English 226.....	(2)	(2)	1
Political Economy 142	4	4	4
Secondary Education 4....	3(2)	.....	.....
Organization and Materials 5.....	.....	3(2)	.....
Rural Organization 6.....	.....	.....	3(2)
Advanced Crops 26.....	2(4)*	.....	.....
Advanced Soils 27.....	2(4)*	.....	.....
Farm Management 28.....	.....	2(4)	2(4)*
Dairy Management 49.....	.....	2(4)	.....
Farm Poultry 50.....	.....	3	.....
Live Stock Management 51	.....	.....	2(4)*
Animal Diseases 481.....	.....	.....	3(4)
Plant Breeding 268.....	.....	3(2)	(4)**
Market Gardening 286.....	.....	.....	2(4)*
Amateur Floriculture 315..	.....	.....	2(4)*
Farm Forestry 320.....	.....	.....	2(4)
Agricultural Chemistry 91.	4	.....	.....
Agricultural Analysis 92...	(4)	.....	.....
Farm Drainage 128.....	(4)	.....	.....
Farm Machinery 437.....	2(4)	.....	.....
Farm Buildings 441.....	.....	.....	(4)**
Research and Thesis 7.....	.....	(2)	(2)
Military Instruction	1(4)	1(4)	1(4)
.....	.....	.....	.....

*Alternative.

!For present, students offering entrance credits in German will take French and vice versa.

AGRONOMY COURSE.

The four-year Course in Agronomy is designed to fit the gradua for conducting practical operations on the farm, or, should tas or circumstances so direct, to prosecute successfully advance scientific research along the lines of agronomy, or if occasion re quires, to act as county demonstrators or advisers. With these end in view, the Course has been made at once comprehensive and tech nical. It is comprehensive enough to include whatever is necessary

Agronomy Course.

Subject.	Term. I	Term. II	Term. III
Freshman Year.			
Plane Trigonometry 400..	5	.....	.....
English 220.....	4(2)	4(2)	4(2)
History 160.....	3*	3*	3*
Latin 340.....	3*	3*	3*
German 360 !.....	3**	3**	3**
French 380 !.....	3**	3**	3**
Agronomy 20.....	....	.....	3(2)
Animal Husbandry 40 ...	1(4)	.....	.....
Animal Husbandry 41 ...	.....	3(4)	.....
Botany 60.....	.....	.....	2(6)
Zoology 240.....	2(4)	2(4)	.....
Chemistry 80.....	.....	4(2)	4(2)
Freehand Drawing 420...	(4)	.....	.....
Military Instruction.....	1(4)	1(4)	1(4)
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
Junior Year.			
Mechanics and Sound 200, 203.....	2(4)	.....	.....
Electricty and Magnetism 201, 204.....	.....	2(4)	.....
Heat and Light 202, 205...	.....	.....	2(4)
AdvancedComposition 223	1(2)	1(2)	1
Public Speaking 224.....	(2)	(2)	(2)
Civil Government 140.....	3	3	.....
Business Law 141.....	.....	.....	3
Psychology 1.....	4	.....	.....
Advanced Soils 24.....	(4)	.....	.....
Grain Judging 25.....	.....	1(4)	.....
Animal Nutrition 43.....	.....	3(2)	.....
Stock Judging 46.....	.....	.....	2(4)
Plant Pathology 66.....	.....	.....	2(4)
Geology 86.....	2(2)	2	.....
Organic Chemistry 87....	4	.....	.....
Bacteriology 100.....	.....	(8)	(8)
Surveying 126.....	.....	.....	2(4)
Mechanical Drawing 421.	(4)	.....	.....
Woodwork 423.....	.....	(4)	.....
Military Instruction.....	1(4)	1(4)	1(4)

Subject.	Term. I	Term. II	Term. III
Sophomore Year.			
Composition 221.....	1(2)	1(2)	1(2)
Public Speaking 222	(2)	(2)	(2)
German 361.....	3*	3*	3*
French 381	3*	3*	3*
Farm Crops 21.....	2(2)	.....	.....
Soils 22.....	2(4)	2(4)	.....
Fertilizers 23.....	.....	.....	2(4)
Pomology 260.....	1(4)	.....	2(2)
Vegetable Culture 280.....	.....	2(4)	1(4)
Landscape Gardening 300.	.....	1(2)	.....
Home Grounds 301.....	.....	.....	(4)
Plant Histology 61.....	1(6)	.....	.....
Plant Physiology 62.....	.....	2(4)	1(4)
Entomology 242.....	.....	.....	2(4)
Chemistry 81.....	2(6)	.....	.....
Quantitative Analysis 83..	.....	1(8)	.....
Military Instruction.... ..	1(4)	1(4)	1(4)
Senior Year.			
English 226.....	(2)	(2)	1
Political Economy 142	4	4	4
Advanced Crops 26.....	2(4)	(4)	.....
Advanced Soils 27.....	2(4)	.....	.....
Farm Management 28.....	.....	2(4)	2(4)
Dairy Management 49.....	.....	2(4)	.....
Farm Poultry 50.....	.....	3	.....
Anatomy and Physiology 480.....	.....	.....	.....
	.....	3	.....
Animal Diseases 481	.....	.....	3(4)
Plant Breeding 268.....	.....	3(2)	(4)
Farm Forestry 320.....	.....	.....	2(4)
Agricultural Chemistry 91	4	.....	.....
Agricultural Analysis 92...	(4)	.....	.....
Farm Drainage 128.....	(4)	.....	.....
Farm Machinery 437.....	2(4)	.....	.....
Farm Buildings 441.....	.....	.....	1(4)
Research and Thesis 29 ...	.....	.....	(4)
Military Instruction.....	1(4)	1(4)	1(4)
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....

*Alternative.

!For present, students offering entrance credits in German will take French and vice versa.

for the complete development of the work, yet technical enough to make the student feel that he is a specialist and equipped for special work.

Students taking this Course will be required to spend at least eight weeks of the summers following the Sophomore and Junior years in actual farm work on their home farms or on other accredited farms under the supervision of the College. All students will be required to keep notes and on their return to College to submit a written report of the summer's work and observations.

ANIMAL HUSBANDRY COURSE.

The purpose of the Course in Animal Husbandry is to fit the graduate to carry out successfully the operations pertaining to general farming, to become an expert in the raising and feeding of live stock, to pursue scientific investigations along lines pertaining to animal husbandry, or to act in the capacity of an adviser or demonstrator in rural communities. Therefore, the curriculum has been outlined to include, in addition to the subjects necessary for the development of a specialist in animal husbandry, those which will give a broad training in agriculture and other cultural branches.

Students taking this Course will be required to spend at least eight weeks of the summers following the Sophomore and Junior years in actual farm work on their home farms or on other accredited farms under the supervision of the College. All students will be required to keep notes and on their return to College to submit a written report of the summer's work and observations.

Animal Husbandry Course.

Subject.	Term. I	II	III	Subject.	Term. I	II	III
Freshman Year.				**Sophomore Year.**			
Plane Trigonomety 400...	5	.....	.....	Composition 221.....	1(2)	1(2)	1(2)
English 220.....	4(2)	4(2)	4(2)	Public Speaking 222.....	(2)	(2)	(2)
History 160.....	3*	3*	3*	German 361.....	3*	3*	3*
Latin 340.....	3*	3*	3*	French 381.....	3*	3*	3*
German 360 !.....	3**	3**	3**	Farm Crops 21.....	2(2)	.....	.....
French 380 !.....	3**	3**	3**	Soils 22.....	2(4)	2(4)	.....
Agronomy 20.....	.....	.....	3(2)	Fertilizers 23.....	...	.....	2(4)
Animal Husbandry 40.....	1(4)	.....	.....	Pomology 260.....	1(4)	.....	2(2)
Animal Husbandry 41.....	.....	3(4)	.....	Vegetable Culture 280.....	.....	2(4)	1(4)
Botany 60.....	.....	.....	2(6)	Landscape Gardening 300.	.....	1(2)	.....
Zoology 240.....	2(4)	2(4)	.....	Home Grounds 301.....	.....	.....	(4)
Chemistry 80.....	.....	4(2)	4(2)	Plant Histology 61.....	1(6)	.....	.....
Freehand Drawing 420....	(4)	.....	.....	Plant Physiology 62.....	.....	2(4)	1(4)
Military Instruction.....	1(4)	1(4)	1(4)	Entomology 242.....	.....	.....	2(4)
.....	.....	.....	.....	Chemistry 81.....	2(6)	.....	.....
.....	.....	.....	.....	Quantitative Analysis 83..	.....	1(8)	.....
.....	.....	.....	.....	Military Instruction.....	1(4)	1(4)	1(4)
Junior Year.				**Senior Year.**			
Mechanics and Sound 200, 203.....	2(4)	.....	.....	English 226.....	(2)	(2)	1
Electricity and Magnetism 201, 204.....	.....	2(4)	.....	Political Economy 142.....	4	4	4
Heat and Light 202, 205...	.....	.....	2(4)	Advanced Crops 26.....	2(4)	.....	.....
AdvancedComposition 223	1(2)	1(2)	1	Farm Management 28.....	.....	2(4)	2(4)
Public Speaking 224.....	(2)	(2)	(2)	Animal Nutrition 47.....	3(4)	.....	.....
Civil Government 140.....	3	3	.....	Dairying 48.....	3(8)	.....	.....
Business Law 141.....	.....	.....	3	Farm Poultry 50.....	.....	3	.....
Psychology 1	4	.....	.....	Live Stock Management 51	.....	.....	2(4)
Breeds and Breeding 42..	(4)	.....	.....	Anatomy and Physiology 480.....	.....	3	.....
Animal Nutrition 43.....	.....	3(2)	2(4)	Animal Diseases 481.....	.....	.....	3(4)
Principles of Breeding 44.	.....	3	.....	Farm Forestry 320.....	.....	.....	2(4)
Stock Judging 46.....	.....	.....	2(4)	Animal Parasites 247.....	.....	2(4)	.....
Geology 86.....	2(2)	2	.....	Bacteriology 101.....	.....	1(6)	.....
Organic Chemistry 87....	4	.....	.....	Farm Machinery 437.....	2(4)	.....	.....
Bacteriology 100.....	.....	(8)	(8)	Farm Buildings 441	.....	.....	1(4)
Surveying 126.....	.....	.....	2(4)	Research and Thesis 52....	.....	(4)	.....
Mechanical Drawing 421..	(4)	.....	.....	Military Instruction.....	1(4)	1(4)	1(4)
Woodwork 423.....	.....	(4)	.....	.....	.....	.....	.....
Military Instruction.....	1(4)	1(4)	1(4)	.....	.....	.....	.....

*Alternative.
!For present, students offering entrance credits in German will take French and vice versa.

TWO-YEAR AGRICULTURAL COURSE.

A large number of young men seeking to better themselves in their chosen profession of farming are calling for instruction in those courses pertaining to practical agriculture. Many of them have neither the time nor means at hand to take the full four-year Course, but while away in school they wish to gain the greatest possible amount of instruction and assistance which is particularly ap-

plicable to the farm. They realize that the farm can no longer be run in the old-time haphazard way, that there is a demand for skill and the highest order of intelligence to make a success on the farm, as in any other line of human endeavor, and that brains must be

Two-Year Agricultural Course.*

Subject.	Term. I	II	III	Subject.	Term. I	II	III
First Year.				**Second Year .**			
Farm Accounts	2	.....	.....	Business Law	.....	3	.....
English	4(2)	4(2)	3(2)	Rural Organization	.....	.....	2
Farm Literature	(2)	(2)	(2)	Agronomy	4(8)‖	2(4)‖	4(8)‖
Farm Crops and Soils	3(2)	.....	3(4)	Fertilizers	.....	3(2)	.....
Animal Husbandry	2(4)	3(2)	3(4)	Farm Crops	.....	1(4)	3(2)
Horticulture	2(4)	3(6)	2(4)	Farm Management	.....	2(2)	.....
Farm Botany	1(4)	.....	.....	Animal Industry	4(8)‖	2(4)‖	4(8)‖
Farm Zoology and Entomology	.....	2(2)	2(2)	Animal Feeding	3(2)	.....	.....
Farm Chemistry	.....	.....	2(2)	Farm Poultry	.....	.....	2
Farm Drawing	(4)	.....	.....	Animal Diseases	.....	3(2)	.....
Farm Woodwork	.....	(4)	.....	Horticulture	4(8)‖	2(4)‖	4(8)‖
Farm Machinery	.....	2(4)	.....	Farm Forestry	.....	.....	2(4)
Military Instruction	1(4)	1(4)	1(4)	Plant Diseases	2(2)	.....	.....
.....	.....	.....	.....	Sprays and Spraying	.....	1(2)	(4)
.....	.....	.....	.....	Farm Chemistry	4(4)	.....	.....
.....	.....	.....	.....	Farm Bacteriology	.....	(4)	.....
.....	.....	.....	.....	Farm Water Supply and Sewerage	(4)	.....	.....
.....	.....	.....	.....	Farm Drainage	.....	.....	2(2)
.....	.....	.....	.....	Farm Buildings	(4)	.....	.....
.....	.....	.....	.....	Military Instruction	1(4)	1(4)	1(4)

*A description of the courses given will be found at the end of courses offered in each Department involved.

‖The student, after consultation with the Professor in charge of the Course, will elect from the courses offered in agronomy, animal industry and horticulture a sufficient number of subjects to make up the required number of periods.

planted with each little seed, and also put into the feeding trough for the animal. To meet the demand for instruction along these lines, and for a better understanding of the underlying principles of successful agriculture, a short course of two years has been provided.

It embraces much of the technical work of the four-year Course, and is especially designed to lay a foundation that will secure success in practical farming, which, as it must be conducted today, is a union of many interests. To enter this Course the applicant must be not less than sixteen years of age and must satisfy the College authorities by examination or otherwise that he has preparation at least equal to the work of the seventh grade of the Maryland public schools.

Students taking this Course are required to spend not less than ten weeks during the summer between the First and Second year in actual farm work on some accredited farm under the supervision of the College.

SHORT WINTER COURSES.

For men and women who can spare from one to ten weeks only from their home duties the College offers a series of short courses occupying from one to two weeks each, beginning after the Christmas vacation.

For 1917 the arrangement will be:

First week—Soils and Fertilizers.

Second week— { Farm Crops. / Domestic Science.

Third week—Poultry Husbandry.

Fourth and fifth week—Horticulture.

Sixth week—Horses and Beef Cattle.

Seventh week—Swine and Sheep Husbandry.

Eighth week—Dairy Husbandry.

Ninth week—Farm Implements and Motors.

Tenth week—Farm Carpentry, Blacksmithing and Pipe Fitting.

Experience has demonstrated the advantage of dividing the work into short periods, during which time the attention of the student is engrossed wholly with one subject. It enables the student to concentrate his efforts and affords opportunity for those who are interested in but one or two subjects, such as poultry husbandry or domestic science, for example, to take what they desire with the greatest economy of time.

No charge is made to short course students for the use of laboratories. Good board at moderate rates can be secured in the neighborhood. For more detailed information regarding these courses, write for bulletin and folders.

HORTICULTURAL COURSE.

Through the organization of the Division of Horticulture an opportunity is presented for students in the four-year Course to spe-

Horticultural Course.

Subject.	Term. I	Term. II	Term. III
Freshman Year.			
Plane Trigonometry 400..	5	.....	.....
English 220.....	4(2)	4(2)	4(2)
History 160	3*	3*	3*
Latin 340.....	3*	3*	3*
German 360†	3**	3**	3**
French 380†	3**	3**	3**
Agronomy 20	.....	.....	3(2)
Animal Husbandry 40....	1(4)	.....	.....
Animal Husbandry 41....	.....	3(4)	.....
Botany 60.....	.....	.....	2(6)
Zoology 240.....	2(4)	2(4)	.....
Chemistry 80.....	.....	4(2)	4(2)
Freehand Drawing 420...	(4)	.....	.....
Military Instruction	1(4)	1(4)	1(4)
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
Junior Year.			
Mechanics and Sound 200. 203.....	2(4)	.....	.....
Electricity and Magnetism 201, 204.....	.....	2(4)	.....
Heat and Light 202, 205...	.....	.....	2(4)
AdvancedComposition 223	1(2)	1(2)	1
Public Speaking 224	(2)	(2)	(2)
Civil Government 140.....	3	3	.....
Business Law 141.....	.....	.....	3
Psychology 1.....	4	.....	.....
Commercial Pomology 261	2(4)‖	.....	.....
Fruit Judging 262.....	(2)‖	(2)‖	.....
Practical Pomology 263...	.....	2(4)‖	(4)‖
Small Fruit Culture 264...	.....	.....	2(2)‖‡
Vegetable Forcing 281....	2(4)‡	2(4)‡	(4)‡
Vegetable Literature 282.	(2)‡	1‡	.....
Landscape Gardening 302	(2)§	.....	.....
Floriculture 303.....	2(4)§	.....	.....
Commercial Floriculture 304, 305.....	.....	3(4)§	2(6)§
Vegetable Pathology 66...	.....	.....	2(4)
EconomicEntomology 244	.....	3(2)	1(4)
Organic Chemistry 87....	4	.....	.....
Bacteriology 100.....	.....	(8)	.....
Surveying 126	.....	.....	2(4)
Mechanical Drawing 421.	(4)	.....	.....
Woodwork 423.....	.....	(4)	.....
Military Instruction.....	1(4)	1(4)	1(4)
.....	.....	.....	.....
.....	.....	.....	.....

Subject.	Term. I	Term. II	Term. III
Sophomore Year.			
Composition 221.....	1(2)	1(2)	1(2)
Public Speaking 222	(2)	(2)	(2)
German 361.....	3*	3*	3*
French 381.....	3*	3*	3*
Farm Crops 21.....	2(2)	.....	.....
Soils 22.....	2(4)	2(4)	.....
Fertilizers 23.....	.....	.....	2(4)
Pomology 260.....	1(4)	.....	2(2)
Vegetable Culture 280.....	.....	2(4)	1(4)
Landscape Gardening 300.	.....	1(2)	.....
Home Grounds 301.....	.....	.....	(4)
Plant Histology 61.....	1(6)	.....	.....
Plant Physiology 62.....	.....	2(4)	1(4)
Entomology 242	.....	.....	2(4)
Chemistry 81.....	2(6)	.....	.....
Quantitative Analysis 83..	.....	1(8)	.....
Military Instruction.....	1(4)	1(4)	1(4)
Senior Year.			
English 226.....	(2)	(2)	1
Political Economy 142.....	4	4	4
Farm Management 28.....	.....	2(4)	2(4)
Dairy Management 49.....	.....	2(4)!	.....
Farm Poultry 50.....	.....	3!	.....
Systematic Pomology 265.	2(4)‖	1(4)‖	.....
Advanced Pomology 266 ..	2(4)‖	.....	2(4)‖
Pomology 267.....	.....	3‖	.....
Plant Breeding 268.....	.....	3(2)	(4)
Commercial Vegetable Gardening 283.....	1(4)‡	2(4)‡	2(4)‡
Vegetable Gardening 284..	1(2)‡	.....	.....
SystematicOlericulture 285	1(4)‡	(4)‡	1(4)‡
Market Gardening 286.....	.....	.....	2(4)‖
Greenhouse Construction 306.....	2(4)§	.....	.....
Landscape Design 307, 309.	2(4)§	2(4)§	.....
Civic Art 308.....	2§	.....	.....
Landscape Practice 310....	.....	(4)§	1(4)§
Plant Materials 311.....	.....	2(2)§	.....
Floral Decoration 312.....	.....	1(4)§	.....
Garden Flowers 313	.....	.....	2(4)§
Tree Repair 314.....	.....	.....	1(4)§
Farm Forestry 320.....	.....	.....	2(4)
Agricultural Chemistry 91	4	.....	.....
Agricultural Analysis 92 ..	(4)	.....	.....
Farm Machinery 437.....	2(4)	.....	.....
Research and Thesis 269.	(4)‖	(6)‖	(4)‖
Research and Thesis 287.	(4)‡	(6)‡	1(4)‡
Military Instruction.....	1(4)	1(4)	1(4)

*Alternative.

!Alternative for students in Pomology and Vegetable Gardening. If Dairy Management be elected Research and Thesis must be reduced to 4 practical periods.

‖For students specializing in Pomology.

‡For students specializing in Vegetable Gardening.

§For students specializing in Landscape Gardening and Floriculture.

†For present, students offering entrance credits in German will take French and vice versa.

cialize in either pomology, vegetable culture or landscape gardening and floriculture.

These courses are designed to fit the student for conducting practical operations in horticulture on the farm, or to continue scientific research work and teaching in his chosen field. Practical work is made a prominent feature of the course. In the Freshman and Sophomore years the work is not materially different from that of the Agricultural and Biological Courses, as all students are required to take certain fundamental subjects. In the Junior and Senior years the courses become specialized.

The College and Experiment Station farm, orchards, greenhouses, etc., together with the close proximity of the Institution to the United States Department of Agriculture greenhouses and experiment farms, offer unusual opportunities to the students in horticulture.

BIOLOGICAL COURSE.

The Biological Course, while offering a general education and special training in the natural sciences, is outlined in particular for those who wish to specialize in some branch of botany or zoology. It aims to fit men for practical work in the field of plant pathology and entomology, but will also give training for special work in the pure sciences.

In addition, this Course is specially valuable in preparing students who wish to enter the medical profession, particularly those who expect to enter the highest grade medical schools, which require for entrance a four year collegiate course in sciences and languages. These students will be required to substitute organic chemistry for some subject given in the regular Biological Course.

There are many opportunities for scientific workers in connection with the Agricultural investigations of the Federal Government and of the State Experiment Stations, as well as in the State inspection work, for which this Course gives training. In fact, it is now difficult to secure men trained for such work. Full opportunity is given for the student to develop his natural resources and to learn to do work on his own responsibility. A large part of his time is spent in both practical and theoretical biological studies, without neglect-

ing the cultural studies which are a necessary foundation for every specialist.

Biological Course.

Subject.	Term. I	II	III
Freshman Year.			
Plane Trigonometry 400..	5	.....	.....
English 220.....	4(2)	4(2)	4(2)
History 160.....	3*	3*	3*
Latin 340.....	3*	3*	3*
German 360‡	3**	3**	3**
French 380‡.....	3**	3**	3**
Agronomy 20.....	.....	.....	3(2)
Animal Husbandry 40....	1(4)	.....	.....
Animal Húsbandry 41....	.....	3(4)	.....
Botany 60.....	.....	.....	2(6)
Zoology 240.....	2(4)	2(4)	.....
Chemistry 80.....	.....	4(2)	4(2)
Freehand Drawing 420...	(4)	.....	.....
Military Instruction	1(4)	1(4)	1(4)
.....	.....	.....	.....
.....	.....	.....	.....
Junior Year.			
Mechanics and Sound 200, 203	2(4)	.....	.....
Electricity and Magnetism 201, 204.....	.....	2(4)	.....
Heat and Light 202. 205...	.....	.....	2(4)
AdvancedComposition 223	1(2)	1(2)	1
Public Speaking 224.....	(2)	(2)	(2)
Civil Government 140.....	3	3	.....
Business Law 141.....	.....	.....	3
Psychology 1.....	4	.....	.....
Morphology 63.....	2(4)	.....	.....
Economic Plants 64.....	.....	1(4)†	.....
Vegetable Pathology 66..	.....	.....	2(4)
Botany 67...	.....	.....	2(6)†
Economic Zoology 243 ...	1(4)	2(4)	.....
EconomicEntomology 244	.....	3(2)	1(4)
Entomology 245	.....	1(4) !	2(6)!
Organic Chemistry 87....	4	.....	.....
Bacteriology 100.....	.....	(8)	(8)
Military Instruction.....	1(4)	1(4)	1(4)

Subject.	Term. I	II	III
Sophomore Year.			
Composition 221.....	1(2)	1(2)	1(2)
Public Speaking 222.....	(2)	(2)	(2)
German 361.....	3*	3*	3*
French 381.....	3*	3*	3*
Farm Crops 21	2(2)	.....	.....
Pomology 260.....	1(4)	.....	2(2)
Vegetable Culture 280.....	.....	2(4)	1(4)
Landscape Gardening 300.	.....	1(2)	.....
Home Grounds 301.....	.....	.....	(4)
Plant Histology 61.....	1(6)	.....	.....
Plant Physiology 62.....	.....	2(4)	1(4)
Zoology 241.....	2(4)	2(4)	2(4)
Entomology 242.....	.....	.....	2(4)
Chemistry 81.....	2(6)	.....	.....
Quantitative Analysis 83.	.....	1(8)	.....
Military Instruction.....	1(4)	1(4)	1(4)
Senior Year.			
English 226.....	(2)	(2)	1
Political Economy 142.....	4	4	4
German 362.....	3*	3*	3*
French 382.....	3*	3*	3*
Advanced Botany 68	7(12)†	7(12)†	7(12)†
Advanced Entomology 246	7(12)!	7(12)!	7(12)!
Research and Thesis 69,248	(8)	(8)	(8)
Military Instruction.....	1(4)	1(4)	1(4)
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....

*Alternative.

†For students specializing in Botany.

!For students specializing in Entomology.

‡For present, students offering entrance credits in German will take French and vice versa.

CHEMICAL COURSE.

The Course in Chemistry differs but little from the other courses until the beginning of the Sophomore Year and the work in the Freshman Year of any of the four-year courses will prepare for

it, as the amount of chemistry is the same in all courses to the beginning of the Second Term of the Sophomore year and the demands on the agricultural or technical chemist are now so varied that a foundation with more of the essentials of the agricultural or the engineering courses is often desirable.

Beginning with the Second Term of the Sophomore year the major part of the student's time is devoted to chemistry, the practical work in the laboratory occupying approximately half of his time. The course is essentially a course in agricultural chemistry, fitting the graduate for positions in agricultural colleges, experiment stations and the United States Department of Agriculture.

Chemical Course.

Subject.	Term. I	II	III
Freshman Year.			
Plane Trigonometry 400..	5	.....	.....
Algebra 401.....	.....	3	.....
Analytics 402.....	.....	.....	5
English 220.....	4(2)	4(2)	4(2)
History 160.....	3*	3*	3*
Latin 340	3*	3*	3*
German 360†	3**	3**	3**
French 380†	3**	3**	3**
Botany 60.....	.....	.....	2(4)
Zoology 240.....	2(4)	2(4)	.....
Chemistry 80.....	.....	4(2)	4(2)
Freehand Drawing 420....	(4)	.....	.....
Mechanical Drawing 421..	.....	(4)	.....
Woodwork 423	(6)	.....	.....
Military Instruction.....	1(4)	1(4)	1(4)
....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
Junior Year.			
AdvancedComposition 223	1(2)	1(2)	1
Public Speaking 224	(2)	(2)	(2)
Civil Government 140.....	3	3	.....
Business Law 141.....	.....	.....	3
German 362.....	3*	3*	3*
French 382.....	3*	3*	3*
Micro Botany 65.....	.....	.....	2(4)
Geology 86	2(2)	2	.....
Organic Chemistry 88.....	3(4)	3(4)	3(4)
Quantitative Analysis 89..	1(12)	1(14)	1(12)
Stoichiometry 90.....	1	1	1
Military Instruction	1(4)	1(4)	1(4)

Subject.	Term. I	II	III
Sophomore Year.			
Analytics 402.....	5	.....	.....
Calculus 403.....	.....	5	.....
Mechanics and Sound 200, 203.....	3(4)	.....	.....
Electricity and Magnetism 201, 204.....	.....	3(4)	.....
Heat and Light 202, 205....	.....	.....	3(4)
Composition 221.....	1(2)	1(2)	1(2)
Public Speaking 222.....	(2)	(2)	(2)
German 361	3*	3*	3*
French 381.....	3*	3*	3*
Plant Histology 61.....	1(6)	.....	.....
Plant Physiology 62.....	.....	2(4)	1(4)
Chemistry 81.....	2(6)	.....	.....
Qualitative Analysis 82.....	.....	1(8)	.....
Chemistry 84.....	.....	.....	2(4)
Mineralogy 85.....	.....	.....	1(4)
Elementary Electricity 182 183..	.....	.....	3(2)
Military Instruction.....	1(4)	1)4)	1(4)
Senior Year.			
English 226.....	(2)	(2)	1
Political Economy 142.....	4	4	4
Argicultural Chemistry 91.	4	.....	.....
Agricultural Analysis 92..	(12)	.....	.....
Physiological Chemistry 93	4(4)	.....	.....
Physical Chemistry 94.....	.....	3(14)	3
Inorganic Chemistry 95...	.....	3	3
Industrial Chemistry 96...	.....	3	3
Chemistry 97.....	.....	.....	(8)
Bacteriology 101.....	1(6)	1(6)	1(6)
Research and Thesis 98....	.....	.....	(6)
Military Instruction.....	1(4)	1(4)	1(4)

*Alternative.

†For present, students offering entrance credits in German will take French and vice versa.

CANNING COURSE.

The great importance of the canning industry in Maryland; the fact that it is, to a great extent, an agricultural industry, and the further fact that the suggestion of a Course has met with so many hearty indorsements from prominent canners, has caused the College authorities to establish a Course in Canning, in order that young men interested may have an opportunity to become acquainted with the underlying sciences, and at the same time secure a liberal education.

Canning Course.

Subject.	Term. I	Term. II	Term. III
Freshman Year.			
Plane Trigonometry 400	5	.....	.....
Algebra 401	.....	3	.....
English 220	4(2)	4(2)	4(2)
History 160	3*	3*	3*
Latin 340	3*	3*	3*
German 360†	3**	3**	3**
French 380†	3**	3**	3**
Agronomy 20	.....	.....	3(2)
Botany 60	.....	.....	2(6)
Zoology 240	2(4)	2(4)	.....
Chemistry 80	.....	4(2)	4(2)
Freehand Drawing 420	(4)	.....	.....
Mechanical Drawing 421	.....	(4)	.....
Woodwork 423	(6)	.....	.....
Military Instruction	1(4)	1(4)	1(4)
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
Junior Year.			
AdvancedComposition 223	1(2)	1(2)	1
Public Speaking 224	(2)	(2)	(2)
Civil Government 140	3	3	.....
Business Law 141	.....	.....	3
German 362	3*	3*	.....
French 382	3*	3*	.....
Fruit Judging 262	(2)	.....	.....
Small Fruit Culture 264	.....	.....	2(2)
Vegetable Pathology 66	.....	.....	2(4)
Organic Chemistry 88	3(4)	3(4)	3(4)
Quantitative Analysis 89	(8)	.....	.....
Bacteriology 100	.....	(8)	(8)
Canning Technology	2(4)	5(4)	2(4)
Electrical Laboratory 186	(4)	.....	.....
Military Instruction	1(4)	1(4)	1(4)

Subject.	Term. I	Term. II	Term. III
Sophomore Year.			
Mechanics and Sound 200, 203	3(4)	.....	.....
Electricity and Magnetism 201, 204	.....	3(4)	.....
Heat and Light 202, 205	.....	.....	3(4)
Composition 221	1(2)	1(2)	1(2)
Public Speaking 222	(2)	(2)	(2)
German 361	3*	3*	3*
French 381	3*	3*	3*
Agronomy 21	(2)	.....	.....
Soils 22	2(4)	.....	.....
Vegetable Culture 280	.....	2(4)	1(4)
Landscape Gardening 300	.....	(2)	.....
Plant Histology 61	1(6)	.....	.....
Plant Physiology 62	.....	2(4)	1(4)
Entomology 242	.....	.....	2(4)
Chemistry 81	2(6)	.....	.....
Quantitative Analysis 83	.....	1(8)	.....
Elementary Electricity 182, 183	.....	.....	3(2)
Military Instruction	1(4)	1(4)	1(4)
Senior Year.			
English 226	(2)	(2)	1
Political Economy 142	4	4	4
Plant Breeding 268	.....	3(2)	.....
Commercial Vegetable Gardening 283	1(4)	2(4)	2(4)
Vegetable Gardening 284	1(2)	.....	.....
Agricultural Chemistry 91	4	.....	.....
Agricultural Analysis 92	(8)	.....	.....
Physical Chemistry 94	.....	3(4)	3
Industrial Chemistry 96	.....	3	3
Chemistry 97	.....	.....	(4)
Canning Technology	3(4)	2(4)	3(6)
Practical Problems 127	(4)	.....	.....
Research and Thesis	.....	.....	(4)
Military Instruction	1(4)	1(4)	1(4)

*Alternative.

†For present, students offering entrance credits in German will take French and vice versa.

During the first two years of the Course the studies will not differ much from those of the other courses. After this a large part of the student's time will be occupied with sciences relating directly to the canning industry, such as bacteriology, chemistry, agriculture, horticulture, and canning technology. This latter will cover a wide range and will include the theory and practice of canning in various lines, experimental work, and lectures from persons of national reputation. Assistance in these lectures has been promised by officers of the National Canners' Association and others.

A canning expert is to be engaged to take charge of the technical instruction in canning, which will include both theoretical and laboratory work.

Routine and factory experience are expected to be gained by students spending at least two summers, usually devoted to vacation, in a canning factory.

GENERAL SCIENCE COURSE.

The General Science Course is offered to those young men who have not chosen as their vocation in life any of the technical professions, but who are seeking for such general culture as will fit them to become, after graduation, useful members of society. Young men desiring to study law, or medicine, or the liberal arts, or to become teachers, will find in the curriculum of this Course a highly satisfactory preparation for such work. While emphasis has been placed upon subjects, such as English, language, literature, history, mathematics, etc., the natural sciences occupy a prominent place in the Course and the range of electives will enable each to choose for himself, under certain necessary regulations, such a group of studies as will be best adapted to his own peculiar requirements.

A wide range of electives is offered in order to meet as far as possible the needs of every student. At the opening of the session the student must select with the approval of the Dean of the Division a consistent group of courses for the year. No change may be made in this group later in the session except with the approval of the Dean.

General Science Course.

Subject.	Term. I	II	III
Freshman Year.			
Plane Trigonometry 400..	5	.....	.....
Algebra 401.....	.....	3	.....
Analytics 402.....	.....	.....	5
English 220.....	4(2)	4(2)	4(2)
Latin 340.....	3	3	3
German 360†	3*	3*	3*
French 380†	3*	3*	3*
Botany 60.....	.....	.....	2(4)
Zoology 240.....	2(4)	2(4)	.....
Chemistry 80.....	.....	4(2)	4(2)
Freehand Drawing 420....	(4)	.....	.....
Mechanical Drawing 421..	.....	(4)	.....
Woodwork 423.....	(6)	.....	.....
Military Instruction.....	1(4)	1(4)	1(4)
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
Junior Year.			
AdvancedComposition 223	1(2)	1(2)	1
Public Speaking 224	(2)	(2)	(2)
English Literature 225....	2	2	2
Civil Government 140	3	3	.....
Business Law 141.....	.....	.....	3
History 162.....	3	3	3
Psychology 1.....	4	.....	.....
History of Education 2...	.....	4	.....
Principles of Education 3.	.....	.....	4
German 362.....	3*	3*	3*
French 382	3*	3*	3*
Principles of Breeding 44.	.....	3	.....
Micro Botany 65.....	.....	.....	2(4)**
Vegetable Pathology 66..	.....	.....	2(4)**
Geology 86.....	2(2)	.....	.....
Organic Chemistry 87	4	.....	.....
Bacteriology 100.....	.....	(8)	(8)
Surveying 126	.....	.....	2(4)**
Military Instruction.....	1(4)	1(4)	1(4)

Subject.	Term. I	II	III
Sophomore Year.			
Analytics 402.....	5***	.....	.....
Calculus 403.....	.....	5***	4****
Physics 200. 203.....	3(4)	.....	.....
Physics 201, 204.....	.....	3(4)	.....
Physics 202, 205.....	.....	.....	3(4)
Composition 221	1(2)	1(2)	1(2)
Public Speaking 222.....	(2)	(2)	(2)
Library Science.....	.....	.....	1(4)
History 161.....	5***	5***	4****
Latin 341.....	5***	5***	4****
German 361.....	3*	3*	3*
French 381.....	3*	3*	3*
Soils 22.....	2(4)**	2(4)**	.....
Vegetable Culture 280...	.....	2(4)**	1(4)***
Plant Histology 61	1(6)**	.....	.....
Plant Physiology 62	.....	2(4)**	1(4)***
Zoology 241.....	2(4)**	2(4)**	2(4)**
Entomology 242	.....	.....	2(4)**
Chemistry 81.....	2(6)	.....	.....
Quantitative Analysis 83	.....	1(8)	.....
Mineralogy 85.....	.....	.....	1(4)***
Military Instruction.....	1(4)	1(4)	1(4)
Senior Year.			
English 226.....	(2)	(2)	1
Advanced English 227...	2	4	3
Political Economy 142...	4	4	4
Political Science.....	3*	4*	3*
Advanced History.	3*	4*	3*
German 362.....	3**	3**	3**
French 382.....	3**	3**	3**
Farm Forestry.....	.....	.....	2(4)
Electives‡	12	9	7
Military Instruction.....	(1)4	1(4)	1(4)
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....

*Alternative.

‡The electives may be selected from the following list: First Term, 5 periods in Chemistry 89 or Mathematics 403; 4 periods in Floriculture 303 or Mechanics 122; and 3 periods in Animal Husbandry 40 or Pomology 260; Second Term, 4 periods in Dairying 49 or Electricity 180 and 181; 3 periods in Grain Judging 25, Poultry 50 or Mechanics of Materials 125; and 2 periods in Landscape Gardening 300, Geology 86 or Mathematics 400; Third Term, 4 periods in Agronomy 20, Market Gardening 286. Floriculture 315 or Electricity 180 and 181; and 3 periods in Pomology 260 or 264, Steam Engines 428 or Farm Buildings 441.

†For present, students offering entrance credits in German will take French and vice versa.

CIVIL ENGINEERING COURSE.

This Course offers a young man an opportunity to obtain training in civil engineering which will enable him to engage in practical engineering work in the field or in the drafting room with the assurance that he has the necessary preparation to profit by the experience thus afforded; or which will entitle him to advanced standing, if he desires to pursue a more extended course at a technical school of a higher grade. The curriculum, as outlined, includes not only studies having cultural value, but the sciences which form the basis of engineering. Students who have found themselves de-

Civil Engineering Course.

Subject,	Term. I	Term. II	Term. III
Freshman Year.			
Trigonometry 400	5	2	.....
Algebra 401	.....	3	.....
Analytics 402	.....	.....	5
English 220	4(2)	4(2)	4(2)
History 160	3	3	3
German 360†	3*	3*	3*
French 380†	3*	3*	3*
Chemistry 80	.....	4(2)	4(2)
Engineering Drawing 120	(4)	.....	.....
Surveying 121	.....	2	(4)
Freehand Drawing 420	(4)	.....	.....
Mechanical Drawing 421	(4)	(4)	(4)
Woodwork 423	(6)	.....	.....
Military Instruction	1(4)	1(4)	1(4)
.....	.....	.....	.....
.....	.....	.....	.....
Junior Year.			
Calculus 403	5	.....	.....
Advanced Composition 223	1(2)	1(2)	1
Public Speaking 224	(2)	(2)	(2)
Civil Government 140	3	3	.....
Business Law 141	.....	.....	3
Geology 86	2(2)	2	.....
Engineering Drawing 120	.....	(6)	(8)
Surveying 121	(4)	.....	.....
Mechanics 122	4	.....	.....
Railway Engineering 123	.....	3	3
Structural Design 124	.....	2(4)	2(4)
Mechanics of Materials 125	.....	3	5
Practical Problems 127	.....	.....	(8)
Dynamos 184	3	.....	.....
Electrical Laboratory 186	(4)	.....	.....
Graphics 431	.....	4	.....
Military Instruction	1(4)	1(4)	1(4)

Subject.	Term. I	Term. II	Term. III
Sophomore Year.			
Analytics 402	5	.....	.....
Calculus 403	.....	5	4
Mechanics and Sound 200, 203	3(4)	.....	.....
Electricity and Magnetism 201, 204	.....	3(4)	.....
Heat and Light 202, 205	.....	.....	3(4)
Composition 221	1(2)	1(2)	1(2)
Public Speaking 222	(2)	(2)	(2)
German 361	3*	3*	3*
French 381	3*	3*	3*
Chemistry 81	2(6)	.....	.....
Mineralogy 85	.....	.....	1(4)
Surveying 121	(4)	4	2(4)
Descriptive Geometry 424	(4)	3(4)	2(2)
Military Instruction	1(4)	1(4)	1(4)
Senior Year.			
English 226	(2)	(2)	1
Political Economy 142	4	4	4
Practical Problems 127	(8)	(4)	(4)
Concrete 129	4	.....	.....
Hydraulics 130	4	.....	.....
Estimates of Cost 131	.....	1(4)	.....
Geodesy 132	.....	3	.....
Highways 133	.....	.....	5
Contracts and Specifications 134	.....	.....	2
Structural Design 433	2(4)	2(4)	2(4)
Mechanics of Engineering 434	4	4	3
Hydromechanics 438	.....	4	.....
Heating and Ventilation 442	.....	.....	2(4)
Military Instruction	1(4)	1(4)	1(4)

*Alternative.

†For present, students offering entrance credits in German will take French and vice versa.

ficient in ability to learn mathematics are not advised to enter an engineering course.

All engineering students in the Junior and Senior Classes are required to spend a portion of their time in the reading of the current engineering magazines.

ELECTRICAL ENGINEERING COURSE.

This Course was introduced because of the great demand for young men who are not only well trained in the practical construc-

Electrical Engineering Course.

Subject.	Term. I	Term. II	Term. III
Freshman Year.			
Trigonometry 400	5	2	.....
Algebra 401	.....	3	.....
Analytics 402	.....	.....	5
English 220	4(2)	4(2)	4(2)
History 160	3	3	3
German 360†	3*	3*	3*
French 380†	3*	3*	3*
Chemistry 80	.....	4(2)	4(2)
Surveying 121	.....	.....	(4)
Freehand Drawing 420	(4)	.....	.....
Mechanical Drawing 421	(4)	(4)	(4)
Technical Instruction 422	2	.....	.....
Woodwork 423	(6)	(4)	.....
Military Instruction	1(4)	1(4)	1(4)
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
Junior Year.			
Calculus 403	5	.....	.....
AdvancedComposition 223	1(2)	1(2)	1
Public Speaking 224	(2)	(2)	(2)
Civil Government 140	3	3	.....
Business Law 141	.....	.....	3
Mechanics 122	4	.....	.....
Mechanics of Materials125	.....	3	5
Dynamos 185	3	4	3
Electrical Laboratory 187	(8)	(4)	(8)
Batteries 188	.....	.....	2
Electric Machine Design 189	.....	.....	2(4)
Machine Design 429	1(4)	2(4)	.....
Machine Work 430	.....	(4)	(4)
Graphics 431	.....	4	.....
Military Instruction	1(4)	1(4)	1(4)

Subject.	Term. I	Term. II	Term. III
Sophomore Year.			
Analytics 402	5	.....	.....
Calculus 403	.....	5	4
Mechanics and Sound 200, 203	3(4)	.....	.....
Electricity and Magnetism 201, 204	.....	3(4)	.....
Heat and Light 202, 205	.....	.....	3(4)
Composition 221	1(2)	1(2)	1(2)
Public Speaking 222	(2)	(2)	(2)
German 361	3*	3*	3*
French 381	3*	3*	3*
Chemistry 81	2(6)	.....	.....
Electricity 180, 181	.....	3(2)	3(2)
Descriptive Geometry 424	(4)	3(4)	2(2)
Blacksmithing 425	(4)	.....	.....
Steam Engines 428	.....	.....	3
Military Instruction	1(4)	1(4)	1(4)
Senior Year.			
English 226	(2)	(2)	1
Political Economy 142	4	4	4
Hydraulics 130	4	.....	.....
Electric Machine Design 189, 196	(4)	.....	1(8)
Alternators 190	5	5	3
Electrical Laboratory 191	(8)	(8)	(8)
Electric Lighting 192	2	2	.....
Electric Power Plants 193	.....	2	2
Telephones and Telegraphs 194, 195	.....	2(2)	2(2)
Electric Railways 197	.....	.....	3
Thermodynamics 436	3	.....	.....
Hydromechanics 438	.....	4	.....
Military Instruction	1(4)	1(4)	1(4)
.....	.....	.....	.....

*Alternative.

†For present, students offering entrance credits in German will take French and vice versa.

tion and operation of electrical machines, but who have a thorough knowledge of the principles and laws controlling the phenomena and forces with which they have to deal.

The general plan of the Course is to make the student thoroughly acquainted with the scientific laws which are the basis of the profession, and at the same time to train him to adapt the laws to practice, to use his own judgment, and to apply honest and accurate methods in all his work.

The curriculum, as outlined, includes those studies which provide a broad general culture, as well as a good foundation for the engineering work which follows. From the beginning of the Second Term of the Sophomore year the electrical training extends continuously throughout the Course.

MECHANICAL ENGINEERING COURSE.

The curriculum of the several years of this Course is outlined so as to give general culture as well as a proper foundation for the profession of Mechanical Engineer.

Young men not having a natural taste for mathematics and the handling of tools are advised not to pursue this Course. The practical work of this Course is most thorough. The student is familiarized from the first with the reading of engineering drawings and with the use of tools and implements used in wood and iron work. He is given daily practice in the shops and is encouraged to develop whatever inventive talent he may have. Results have shown that students completing this Course have no difficulty in securing employment immediately upon graduation in the field of mechanics or mechanical engineering.

Mechanical Engineering Course.

Subject.	Term. I	II	III
Freshman Year.			
Trigonometry 400	5	2	.....
Algebra 401	.....	3	.....
Analytics 402	.....	.....	5
English 220	4(2)	4(2)	4(2)
History 160	3	3	3
German 360†	3*	3*	3*
French 380†	3*	3*	3*
Chemistry 80	.....	4(2)	4(2)
Freehand Drawing 420	(4)	.....	.....
Mechanical Drawing 421	(4)	(4)	(4)
Technical Instruction 422	2	.....	.....
Woodwork 423	(6)	(4)	(4)
Military Instruction	1(4)	1(4)	1(4)
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
Junior Year.			
Calculus 403	5	.....	.....
Advanced Composition 223	1(2)	1(2)	1
Public Speaking 224	(2)	(2)	(2)
Civil Government 140	3	3	.....
Business Law 141	.....	.....	3
Mechanics 122	4	.....	.....
Mechanics of Materials 125	.....	3	5
Dynamos 184	3	4	.....
Electrical Laboratory 186	(4)	(4)	.....
Machine Design 429	1(4)	2(4)	3(8)
Machine Work 430	(4)	(4)	(12)
Graphics 431	.....	4	.....
Experimental Engineering 432	.....	.....	(4)
Military Instruction	1(4)	1(4)	1(4)

Subject.	Term. I	II	III
Sophomore Year.			
Analytics 402	5	.....	.....
Calculus 403	.....	5	4
Mechanics and Sound 200, 203	3(4)	.....	.....
Electricity and Magnetism 201, 204	.....	3(4)	.....
Heat and Sound 202, 205	.....	.....	3(4)
Composition 221	1(2)	1(2)	1(2)
Public Speaking 222	(2)	(2)	(2)
German 361	3*	3*	3*
French 381	3*	3*	3*
Chemistry 81	2(6)	.....	.....
Descriptive Geometry 424	(4)	3(4)	2(2)
Blacksmithing 425	(4)	(4)	.....
Technical Mechanics 426	.....	2	.....
Foundry 427	.....	.....	(8)
Steam Engines 428	.....	.....	3
Military Instruction	1(4)	1(4)	1(4)
Senior Year.			
English 226	(2)	(2)	1
Political Economy 142	4	4	4
Hydraulics 130	4	.....	.....
Experimental Engineering 432	(4)	(8)	(8)
Structural Design 433	2(4)	2(4)	3(6)
Mechanics of Engineering 434	4	4	3
Kinematics 435	1(4)	.....	.....
Thermodynamics 436	3	4	3
Hydromechanics 438	.....	4	.....
Heating and Ventilation 442	.....	.....	2(4)
Military Instruction	1(4)	1(4)	1(4)
.....	.....	.....	.....
.....	.....	.....	.....

*Alternative.

†For present, students offering entrance credits in German will take French and vice versa.

RURAL ENGINEERING COURSE.

This Course is offered to students who wish to become proficient in such branches of engineering as relate in particular to the problems of rural communities. The broad training offered in engineering is supplemented by instruction in those agricultural subjects which will give the student a greater breadth of view concerning rural problems requiring the services of an engineer, and, if he should elect to settle in the country for the practice of his profession,

will enable him to conduct his farming operations with pleasure and profit.

Rural Engineering Course.

Subject.	Term. I	Term. II	Term. III
Freshman Year.			
Trigonometry 400	5	2	.....
Algebra 401	.....	3	.....
Analytics 402	.....	.....	5
English 220	4(2)	4(2)	4(2)
History 160	3	3	3
German 360 †	3*	3*	3*
French 380 †	3*	3*	3*
Chemistry 80	.....	4(2)	4(2)
Surveying 121	.....	2	(4)
Freehand Drawing 420	(4)	.....	.....
Mechanical Drawing 421	(4)	(4)	(4)
Technical Instruction 422	2	.....	.....
Woodwork 423	(6)	.....	.....
Military Instruction	1(4)	1(4)	1(4)
.....	.....	.....	.....
.....	.....	.....	.....
Junior Year.			
Calculus 403	5	.....	.....
Advanced Composition 223	1(2)	1(2)	1
Public Speaking 224	(2)	(2)	(2)
Civil Government 140	3	3	.....
Business Law 141	.....	.....	3
Agronomy 20	.....	.....	3(2)
Animal Husbandry 45	.....	.....	(2)
Geology 86	2(2)	2	.....
Mechanics 122	4	.....	.....
Structural Design 124	.....	2(4)	2(4)
Mechanics of Materials 125	.....	3	5
Dynamos 184	3	4	.....
Electrical Laboratory 186	(4)	(4)	.....
Batteries 188	.....	.....	2
Blacksmithing 425	(4)	.....	.....
Machine Work 430	.....	.....	(8)
Graphics 431	.....	4	.....
Military Instruction	1(4)	1(4)	1(4)
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
Sophomore Year.			
Analytics 402	5	.....	.....
Calculus 403	.....	5	4
Mechanics and Sound 200, 203	3(4)	.....	.....
Electricity and Magnetism 201, 204	.....	3(4)	.....
Heat and Light 202, 205	.....	.....	3(4)
Composition 231	1(2)	1(2)	1(2)
Public Speaking 222	(2)	(2)	(2)
German 361	3*	3*	3*
French 381	3*	3*	3*
Chemistry 81	2(6)	.....	.....
Surveying 121	(4)	4	2(4)
Descriptive Geometry 424	(4)	3(4)	2(2)
Steam Engines 428	.....	.....	3
Military Instruction	1(4)	1(4)	1(4)
Senior Year.			
English 226	(2)	(2)	1
Political Economy 142	4	4	4
Soil Physics 22	2(4)	2(4)	.....
Grain Judging 25	.....	(2)	.....
Vegetable Culture 280	.....	2(4)	1(4)
Farm Forestry 320	.....	.....	2(4)
Practical Problems 127	(4)	.....	.....
Concrete 129	4	.....	.....
Hydraulics 130	4	.....	.....
Highways 133	.....	.....	5
Electric Lighting 192	2	.....	.....
Telephones and Telegraphs 194, 195	.....	2(2)	.....
Farm Machinery 437	2(4)	.....	.....
Hydromechanics 438	.....	4	.....
Design of Farm Structures 439	.....	2(4)*	2(4)*
Farm Machinery Design 440	.....	2(4)*	2(4)*
Heating and Ventilation 442	...	.....	2(4)
Military Instruction	1(4)	1(4)	1(4)

*Alternative.

†For present, students offering entrance credits in German will take French and vice versa.

ENGINEERING EDUCATION COURSE.

A substantial demand for teachers of the Manual Arts who have had a broad training in engineering, has led to the establishment of this Course. In addition to the instruction in engineering, a thorough training in pedagogy is offered. Since the need for such

teachers is felt in urban and in rural communities, some opportunity is given the student when he enters the Senior Class, to select those subjects in engineering which will best fit him for the solution of the problems of the community in which he wishes to practice his profession.

Engineering Education Course.

Subject.	Term. I	Term. II	Term. III
Freshman Year.			
Trigonometry 400	5	2	.....
Algebra 401	.....	3	.....
Analytics 402	.....	.....	5
English 220	4(2)	4(2)	4(2)
History 160	3	3	3
German 360†	3*	3*	3*
French 380†	3*	3*	3*
Chemistry 80	.....	4(2)	4(2)
Freehand Drawing 420	(4)	.....	.....
Mechanical Drawing 421	(4)	(4)	(4)
Technical Instruction 422	2	.....	.....
Woodwork 423	(6)	(4)	(4)
Military Instruction	1(4)	1(4)	1(4)
Junior Year.			
Calculus 403	5	.....	.....
Advanced Composition 223	1(2)	1(2)	1
Public Speaking 224	(2)	(2)	(2)
Civil Government 140	3	3	.....
Business Law 141	.....	.....	3
Psychology 1	4(2)	.....	.....
History of Education 2	.....	4	.....
Principles of Education 3	.....	.....	4
Mechanics 122	4	.....	.....
Mechanics of Materials 125	.....	3	5
Surveying 126	.....	.....	2(4)
Electrical Laboratory 186	(4)	(4)	.....
Blacksmithing 425	.....	(4)	.....
Machine Design 429	1(4)	2(4)	3(4)
Graphics 431	.....	4	.....
Experimental Engineering 432	.....	.....	(4)
Military Instruction	1(4)	1(4)	1(4)

Subject.	Term. I	Term. II	Term. III
Sophomore Year.			
Analytics 402	5	.....	.....
Calculus 403	.....	5	4
Mechanics and Sound 200, 203	3(4)	.....	.....
Electricity and Magnetism 201, 204	.....	3(4)	.....
Heat and Light 202, 205	.....	.....	3(4)
Composition 221	1(2)	1(2)	1(2)
Public Speaking 222	(2)	(2)	(2)
German 361	3*	3*	3*
French 381	3*	3*	3*
Chemistry 81	2(6)	.....	.....
Electricity 180, 181	.....	3(2)	3(2)
Descriptive Geometry 424	(4)	3(4)	2(2)
Blacksmithing 425	(4)	.....	.....
Steam Engines 428	.....	.....	3
Military Instruction	1(4)	1(4)	1(4)
Senior Year.			
English 226	(2)	(2)	1
Political Economy 142	4	4	4
Secondary Education 4	3(2)	2	.....
Organization and Materials 5	.....	3(2)	.....
Practical Problems 127	(4)	(4)	.....
Farm Drainage 128	(4)	.....	.....
Concrete 129	4*	.....	.....
Hydraulics 130	4	.....	.....
Estimates of Costs 131	.....	1(4)	.....
Highways 133	.....	.....	5*
Electric Lighting 192	2	2	.....
Telephones and Telegraphs 194, 195	.....	2(2)	2(2)
Machine Work 430	(4)	(4)	(4)
Experimental Engineering 432	.....	.....	(4)
Structural Design 433	2(4)*	.....	.....
Farm Machinery 437	2(4)*	.....	.....
Hydromechanics 438	.....	4	.....
Heating and Ventilation 442	.....	.....	2(4)
School Architecture 443	.....	.....	3(4)*
Advanced Patterns 444	.....	.....	(8)
Military Instruction	1(4)	1(4)	1(4)

*Alternative.

†For present, students offering entrance credits in German will take French and vice versa.

SHORT WINTER COURSES IN ENGINEERING.

These courses are offered to those who for various reasons cannot attend the four year courses. They are thoroughly practical in their nature and exceedingly helpful when full advantage is taken of the instruction given. Folders giving the details of these courses will be sent upon request. The following short courses will be given in 1917:

One week's Course on the Building and Maintenance of Roads.

One week's Course on Farm Machinery and Motors.

One week's Course on Farm Carpentry, Blacksmithing, Pipe Fitting, and the Use of Concrete on the Farm.

SUB-COLLEGIATE COURSE.

The work in this Course is designed to prepare students for the Freshman Class who have been unable to obtain elsewhere a complete course in a High School.

Sub-Collegiate Course.

SUB-FRESHMAN YEAR.				SUB-FRESHMAN YEAR.			
SUBJECT.	Term.			SUBJECT.	Term.		
	I	II	III		I	II	III
Algebra 405	4	4	4	History 164	3**	3**	3**
Plane Geometry 406	4	4	.....	Latin 342	3**	3**	3**
Solid Geometry 407	.....	.....	4‡	German 363	4(1)*	4(1)*	4(1)*
Farm Arithmetic 408	.....	.....	4‡	French 383	4(1)*	4(1)*	4(1)*
Physics 206	4(1)	4(1)	4(1)	Physical Culture	(2)	(2)	(2)
English 231	4(2)	4(2)	4(2)	Military Instruction	(4)	(4)	(4)

*Alternative.

‡Solid Geometry must be taken by students preparing for Engineering Courses. Farm Arithmetic must be taken by students preparing for Agricultural and Horticultural Courses. Elective for other students.

GENERAL INFORMATION.

ADMISSION TO COLLEGE

GENERAL STATEMENT.

A candidate for admission to the College must present, together with his Scholastic Record, a certificate of good moral character; and if the candidate be from another school or college, the certificate must show that he left such institution in good standing.

METHOD OF ADMISSION.

There are two methods of gaining admission to the Freshman Class:

(1.) By Certificate.—The College will accept certificates from approved high schools of Maryland and the District of Columbia, and from accredited academies and preparatory schools of this State and other States. The certificates presented by the candidate must be officially certified by the principal of the school attended and must state in detail the work completed by the candidate.

Blank certificates conveniently arranged for the desired data will be sent upon application.

All admissions by certificates are regarded as merely provisional. That is, while a student presenting a proper certificate is admitted to such standing as it shows him entitled to, he may be required to take a special examination or to do special work in any subject in which his preparation proves to be unsatisfactory; or if, after a fair trial, he fails to maintain a standing in the class to which he was admitted, he may be dropped to a lower class.

(2.) By Examination.—Candidates not admitted by certificate will be required to stand written examinations upon the entrance subjects. These examinations will be held for 1916 on June 7th and 8th, and September 12th and 13th.

UNITS REQUIRED FOR ADMISSION.

A unit designates not less than four or five "periods" of classroom work of eight or ten "periods" of laboratory work per week, continued throughout the school year, each "period" being not less than forty minutes.

An applicant for admission to the Freshman Class must offer credit for fifteen (15) units of high school or other secondary school work. The units covering the fundamental subjects are specifically designated. The others may be selected from the tabulated list of electives.

A deficiency of three units will be allowed a candidate as conditions, but such conditions must be removed by the end of the Scholastic Year in which the candidate is admitted.

Distribution of the Fifteen (15) Units to be Offered in 1916 for Admission to the Several Courses.

AGRONOMY, ANIMAL HUSBANDRY, AGRICULTURAL EDUCATION, OR HORTICULTURE.		BIOLOGY, CHEMISTRY, CANNING, OR GENERAL SCIENCE.		CIVIL ENGINEERING, ELECTRICAL ENGINEERING, MECHANICAL ENGINEERING, RURAL ENGINEERING, OR ENGINEERING EDUCATION.	
SUBJECT.	VALUE IN UNITS.	SUBJECT.	VALUE IN UNITS.	SUBJECT.	VALUE IN UNITS
Algebra	1½	Algebra	1½	Algebra	1½
Plane Geometry	1	Plane Geometry	1	Plane Geometry	1
English	3	English	3	Solid Geometry or Plane Trigonometry	½**
History	2	History	2	English	3
				History	2
Foreign Language or Agriculture	2	French or German	2	French or German	2
Physics (With Notes)	1	Physics (With Notes)	1	Physics (With Notes)	1
Electives from Tabulated list	4½*	Electives from Tabulated list	4½*	Electives from Tabulated list	4

* Students electing Latin in Freshman Class must offer two (2) units in Latin.
**It is preferred that Solid Geometry rather than Plane Trigonometry be offered.

The high schools of the State are primarily local institutions in which the curricula must be adapted to the needs of their respective communities. Therefore, in the correlation of their courses of study with the College Entrance Requirements, it has been necessary to permit prospective students to make a selection of a limited number of credits from the given list of electives.

List of Elective Units.

Group.	Subject.	Value of Subject In Units.	Maximum Number of Units to be Selected from Any Group.
Mathematics	Solid Geometry	½	1
	Plane Trigonometry	½	
	Farm Accounts	½	
History	Ancient	1	2
	European	1	
	General	1*	
	English	1	
	American	1**	
Foreign Language	Latin	1 to 2	3
	French	1 to 2	
	German	1 to 2	
	Spanish	1 to 2	
Science	Chemistry (with notes)	1	4
	Agricul ure	½ to 2	
	Botany	½	
	Zoology	½	
	Physiology	½	
	Physical Geography	½	
	Geology	½	
Industrial Subjects	Freehand Drawing	½ to 1	2
	Mechanical Drawing	½ to 1	
	Shop Work	½ to 1	

* Not to be offered in addition to Ancient and European History.
**May be offered if taken in latter half of high school course.

SUGGESTIONS FOR PREPARATION IN THE REQUIRED SUBJECTS.

MATHEMATICS.

Algebra to Quadratics. (One unit.) As treated in the algebras of Wells, Wentworth, Tanner, Fine, or an equivalent. The four fundamental operations; factoring; highest common factor and least common multiple; fractions (including their conception as ratios) and complex fractions; powers and roots; the solution of linear equations, both numerical and literal, and of problems depending on linear equations; radicals and the theory of exponents; and the solution of simple second degree equations in one unknown quantity by factoring.

Algebra from Quadratics. (One-half unit.) As treated in the algebras of Wells, Wentworth, Tanner, Fine, or an equivalent. Equations with one or more unknown quantities, to be solved by the methods of linear or quadratic equations; ratio, proportion and variation; variables and limits; properties of series, including the

binomial theorem for positive integral exponents, and the formulas for the nth term and sum of the terms of arithmetical and geometrical progressions with applications; logarithms.

PLANE GEOMETRY. (One unit.) As treated by Wentworth, McMahon, Phillips and Fisher, or an equivalent. The usual theorems and constructions, including the general properties of plane rectilinear figures, the circle and measurement of angles, similar polygons, areas, regular polygons and the measurement of the circle; the solution of original exercises, including loci problems; and the application to the mensuration of lines and plane surfaces. The student should be able to prove every statement made, going back step by step until it rests upon primary definitions or axioms.

SOLID GEOMETRY. (One-half unit.) As treated in Wentworth's or an equivalent text-book. In addition to the discussion of general theorems, special attention should be paid to the solution of problems.

PLANE TRIGONOMETRY. (One-half unit.) This course should cover the field of plane trigonometry as given in Wentworth's or an equivalent text-book. It should include the solution of right and oblique triangles and special emphasis should be placed on the solution of practical problems, trigonometric identities, and trigonometric equations.

FARM ACCOUNTS. (One-half unit.) This course should extend over one-half year and treat of bookkeeping as it relates to farm life.

ENGLISH.

Preparation in English has two main objects: (1), command of correct and clear English, spoken and written; (2), power to read with intelligence and appreciation.

To secure the first end, training in grammar and the simple principles of rhetoric and the writing of frequent compositions are essential. The candidate must be able to spell, capitalize and punctuate correctly. He must show a practical knowledge of the essentials of English grammar, including ordinary grammatical terminology, inflection, syntax, the use of phrases and clauses; a thorough training in the construction of the sentence; and familiarity with the simpler principles of paragraph division and structure.

To secure the second end the candidate is required to read the works named below under A and B. The list is intended to give the candidate the opportunity of reading, under intelligent direction, a number of important pieces of literature.

ENGLISH A. For reading and practice. (One and one-half units.) The candidate should read the works prescribed below with a view to understanding and enjoying them. He will be expected to show a reasonable degree of familiarity with their substance, and will be required to have a general knowledge of the History of English and American Literature.

For students entering in 1916: Shakespeare's "Merchant of Venice," "As You Like It," and "Julius Caesar"; Addison's "Sir Roger de Coverley Papers"; Scott's "Ivanhoe"; Goldsmith's "Vicar of Wakefield"; Irving's "Sketch Book"; Macaulay's "Lays of Ancient Rome"; Longefellow's "Evangeline"; Lowell's "Vision of Sir Launfal"; Poe's "Raven"; Eliot's "Silas Marner"; Gray's "Elegy Written in a Country Churchyard"; and such other texts as are prescribed by the State Board of Education in the course of study for the high schools of Maryland.

ENGLISH B. For study and practice. (One and one-half units.) The candidate should read the books presented below with the view of acquiring such knowledge of their contents as will enable him to answer specific questions with accuracy and some detail. The examination is not designed, however, to require minute drill in difficulties of verbal expression, unimportant allusions and technical details.

For students entering in 1916: Shakespeare's "Macbeth"; Milton's "L'Allegro," "Il Penseroso," and "Comus"; Macaulay's Essay on Johnson or Addison, or Carlyle's Essay on Burns; Washington's Farewell Address and Webster's First Bunker Hill Oration or Burke's Speech on Conciliation with America.

HISTORY.

ANCIENT HISTORY TO 300 A. D. (One unit.) If a single textbook is used, it should be West's Ancient World, Wolfson's Essentials in Ancient History, Morey's Outlines of Ancient History, or an equivalent.

EUROPEAN HISTORY, 476 A. D. TO 1648 A. D. (One unit.) Robinson's History of Western Europe or an equivalent. European History from the Fall of Rome to the end of the Thirty Years' War.

GENERAL HISTORY. (One unit.) Myer's, Fischer's or Colby's General History, or an equivalent.

ENGLISH HISTORY. (One unit.) Cheyney's A Short History of England, Andrew's History of England, Walker's Essentials in English History, Montgomery's English History, or an equivalent.

AMERICAN HISTORY. (One unit.) Channing's Student's History of the United States, McLaughlin's History of the American Nation, Hart's Essentials in American History, or an equivalent. The discovery, exploration and settlement of America; the colonial policy of England, culminating in the Revolution; the political, economic and social history of the United States since the adoption of the Constitution.

The entrance examinations in History will be so framed as to require comparison and the use of the judgment, rather than the mere use of the memory.

FOREIGN LANGUAGE.

LATIN. First Year. (One unit.) First Latin Book completed.

Second Year. (One unit.) Three Books of Caesar, or an equivalent.

Forms and constructions needed in texts from Standard Latin Grammar. Prose based on texts.

FRENCH. First Year. (One unit.) Aldrich and Foster's Foundations of French and French Reader, or their equivalents.

Second Year. (One unit.) Reading of four to five hundred pages of graduated texts.

GERMAN. First Year. (One unit.) Bacon's German Grammar, or an equivalent.

Second Year. (One unit.) Reading of about 300 pages of graduated texts.

SPANISH. First Year. (One unit.) Elementary grammar; reading about 100 pages of easy prose; simple composition and dictation.

Second Year. (One unit.) Reading of about 300 pages of graduated texts.

SCIENCE.

PHYSICS. (One unit.) As much as is contained in the text-books of Carhart and Chute, Hall and Bergen, Gage's Elements of Physics, Avery's Elements of Natural Philosophy, or an equivalent. Note books covering laboratory work, etc., must be submitted.

CHEMISTRY. (One unit.) Preparation should include the study of at least one standard text-book, to the end that the pupil may gain a comprehensive and connected view of the most important facts of elementary chemistry. The subjects should be attempted only in schools which possess an adequate equipment; laboratory work is essential and original notes must be submitted; more importance will attach to descriptive chemistry than to analytical, and the student should become as familiar as possible with the commonest non-metals and metals, as well as their simpler compounds.

AGRICULTURE. (One-half to three units.) Courses in Agriculture should include class, laboratory, and field work in Soils and Fertilizers, Farm Crops, Farm Animals, and Horticulture. A special text should be used in the treatment of each subject.

BOTANY. (One-half unit.) As much as is contained in Gray's Lessons, Bailey's Elementary Botany, Bergen's Foundations, or an equivalent.

ZOOLOGY. (One-half unit.) The preparation in Zoology should include a general knowledge of common animals of the locality with regard to their ecological relations; the general study of the animal forms such as the Amoeba, a ciliate, an earth worm, insect, frog and mammal. He should have some work in the general physiology of these types and a comparison of life processes in animals and plants. The student should have such general knowledge of the animal kingdom the characteristics of the Phyla and principal classes of animals as is given in Davison's Practical Zoology.

PHYSIOLOGY. (One-half unit.) The preparation should include the general facts of the anatomy, histology and physiology of the human body and the essentials of hygiene. A text-book, such as the first part of Hough and Sedgwick's The Human Mechanism, or an equivalent should be used in connection with charts and models.

PHYSICAL GEOGRAPHY. (One-half unit.) A study of the earth, atmosphere, waters and attendant phenomena; the distribution of

both animal and vegetable life, and the various industries resulting from the development of the natural resources of the earth.

Text-books on Physical Geography by Gilbert, Davis, Fairbanks, Tarr, or an equivalent.

GEOLOGY. (One-half unit.) The student must show a knowledge of geology as treated in Scott's Introduction to Geology or an equivalent. Notes covering laboratory and field work must be submitted.

INDUSTRIAL SUBJECTS.

SHOPWORK. (One-half to one unit.) A candidate who offers shopwork as an entrance subject is asked to present a detailed statement from his instructor, setting forth the kind and amount of work done.

DRAWING. (One-half to one unit.) A candidate must present a detailed statement from his instructor showing the kind and amount of work done and submit drawings done by himself.

ADMISSION TO OTHER CLASSES.

APPLICANTS FOR ADVANCED STANDING in any course, in addition to satisfying the requirements for admission to the Freshman Class, must pass an examination in the studies which have been pursued by the class for which they are candidates. Work done at a standard college is accepted when properly certified and found on examination to be equivalent in extent and quality to that required at this College.

EXAMINATIONS FOR ADMISSION TO ANY HIGHER CLASS will be held at the College in June and September at the same times as examinations for admission to the Freshman Class.

CANDIDATES FOR THE TWO-YEAR COURSE IN AGRICULTURE must be at least 16 years of age. They are also required to present certificates or pass examinations in subjects which are at least equivalent to those given in the seventh grade of the Maryland Public Schools.

CANDIDATES FOR THE SUB-FRESHMAN CLASS will be required to present certificates or to pass examinations in subjects as follows: Algebra as far as quadratics; two years of high school English or

its equivalent, and four units in other subjects taught in the Maryland High Schools which are not given in the Sub-Freshman Class.

Students from newly acquired territory or any foreign country must have a local guardian appointed with parental powers, with whom the President can deal in any case of emergency. Students who cannot speak English are not desired, and are advised that satisfactory progress at this College on their part cannot be achieved until they have familiarized themselves partly, at least, with the English language.

EXAMINATIONS AND PROMOTIONS.

In order to pass from one class to the next higher, a student is required to pass an examination in each study pursued, by a mark of at least sixty per cent., and to have a combined mark in each branch (daily and examination) of at least seventy per cent.

A student will not be promoted if it is manifest that he cannot pursue successfully the advanced work.

REPORTS.

Detailed reports are sent to parents and guardians at the end of every quarter. These give the grade of the student in every branch of study, his attendance record and his conduct record with comment by the President upon each item.

In addition to this, monthly reports are issued for October, November, January, February and April. These give general information as to scholarship, conduct, attendance and health, and call attention to deficiency in any one of these particulars.

GRADUATION AND DEGREES.

Degrees are granted by the Board of Trustees upon the recommendation of the Faculty.

All applications for degrees must be approved by the Faculty.

BACHELOR OF SCIENCE.

As a requisite for graduation the candidate for this degree must have completed the work previously outlined.

The subject for a thesis must be approved prior to February 1st, by the head of the department in which the investigation is to be pursued, and the thesis must be submitted not later than May 15th.

MASTER OF SCIENCE.

The degree of Master of Science may be conferred as follows:

1. Upon persons who have taken the degree of Bachelor of Science in a recognized institution, and have pursued successfully at this College for one year a course of graduate study, satisfying the following requirements:

The course shall consist of a major subject and two minor subjects germane to the major subject and shall be approved by the professor in charge of the major subject.

At least one minor subject shall be in a different department from the major subject.

The course shall occupy not less than fifteen credit periods per term.

Not fewer than five credit periods per term shall be devoted to the minor subjects.

A thesis satisfactory to the professor in charge of the major subject shall be presented.

2. Upon college graduates of not less than two years' standing, who are employed in any of the departments of the College, including the Experiment Station, and who have completed the equivalent of the above course of study. Candidates under this clause must have their applications approved at least eighteen months before they contemplate receiving their degree.

3. Upon graduates of this College of not less than three years' standing, who having been connected with institutions of learning or research, where adequate facilities for advanced work are available, have completed a course equivalent to (1) and have presented a satisfactory thesis.

MECHANICAL ENGINEER.

The degree of Mechanical Engineer may be conferred as follows:

1. Upon graduates of this College of not less than three years' standing, who having been connected with institutions of learning or research, where adequate facilities for advanced work are available, have completed a course consisting of a major and two minor subjects, and presented a satisfactory thesis. The course of study shall be outlined by the heads of the Departments of Civil, Electrical and Mechanical Engineering.

2. Upon graduates of this College who have had three years' professional experience of an acceptable character. Such candidates must present a full report of such experience and such other information as to the qualifiations for the degree as may be found desirable, and in addition shall present a satisfactory thesis.

3. All candidates must be at least Junior members of the American Society of Mechanical Engineers. All applications for degrees must be approved twelve months prior to the date they contemplate receiving the degree, and the thesis must be presented at least one month prior to such date.

CIVIL ENGINEER.

The degree of Civil Engineer may be conferred upon any candidate who is a graduate of this College with the degree of Bachelor of Science in Civil Engineering, and has been engaged in engineering pursuits for not less than three years since graduation, provided:

1. That he shall be at least a Junior member of the American Society of Civil Engineers, or that he shall have been in responsible charge of work for at least two years.

2. That he shall accompany his application with a synopsis of the work upon which he bases his request.

3. That the Committee composed of the heads of the Civil, Electrical and Mechanical Engineering Departments, to whom his application shall be referred, shall consider him eligible.

4. That previous to receiving the degree he shall comply with such further conditions as the aforesaid committee shall impose.

ELECTRICAL ENGINEER.

The degree of Electrical Engineer may be conferred upon any candidate who is a graduate of this College with the degree of Bachelor of Science in Electrical Engineering, and has been engaged in engineering work for not less than three years after graduation, provided:

1. That he shall be at least an Associate Member of the American Institute of Electrical Engineers.

2. That his application be approved twelve months prior to the date he shall receive the degree.

3. That he shall present a satisfactory thesis.

4. That he shall present with his application a complete report of his engineering experience and an outline of his thesis.

5. That the Committee composed of the heads of the Civil, Electrical, and Mechanical Engineering Departments, to whom the application shall be referred, shall consider him eligible.

SCHOLARSHIPS.

HIGH-SCHOOL SCHOLARSHIPS.— To encourage *worthy young men* who desire a Collegiate Education, the Board of Trustees has established for each High School in Maryland and the District of Columbia, one scholarship *each year,** to be awarded under the following conditions:

1.—The person awarded a scholarship must be a graduate of a high school and qualified to enter the Freshman Class (See Entrance Requirements, page 114), and must be of approved moral character and at least 15 years of age.

2.—The appointment to a scholarship shall be made by the School Superintendent, upon the recommendation and certification of the Principal of the High School.

The Principal of the High School may recommend one or more persons for appointment, with information as to the merits of each case. In making appointments, not only class standing, but inabil-

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*This plan will be gradually put into effect as the present scholarships become vacant.

ity to meet the financial expenses of an education should be given consideration.

3.—The appointment shall be made for the term normally required to complete the course selected.

4.—Each scholarship has the value of $50.00 per year. This amount will be credited on the holder's account.

5.—The scholarship will be forfeited by persistent indifference to scholastic work or by repeated disregard of the rules of discipline of the College.

6.—The scholarship will be forfeited in case the holder fails of promotion at the end of any scholastic year, unless there are extenuating circumstances.

PREPARATORY SCHOOL SCHOLARSHIPS. There has also been established one scholarship *each year* for graduates of each Preparatory School in Maryland and the District of Columbia in which the standard is of such a character as to qualify the appointee for entrance to the Freshman Class. The conditions governing these scholarships are the same as for the High Schools except that the appointment shall be made by the Principal of the Preparatory School.

COUNTY SCHOLARSHIPS.—Counties which do not have a high school will be given one $50.00 scholarship each year, and the recipient may enter the Sub-Freshman class (See Entrance Requirements, page 120). The appointment to the scholarship is made by the County Superintendent after a competitive examination. In other respects the regulations governing this scholarship are the same as for the high-school scholarships.

INDUSTRIAL SCHOLARSHIPS. For the encouragement of *worthy young men* of limited means towards getting a College education, a limited number of industrial scholarships have been established by the Board of Trustees to be awarded under the following conditions:

1.—The number of scholarships will depend upon the amount of service required.

2.—The value of the scholarship will be graduated according to the amount and character of the work performed, and will range

from $40.00 per year upwards. The amount earned will be credited on the holder's account.

3.—The holder of such a scholarship will be required to render to the College certain specified services, such as work in the dining-room, on the corridors, in the library, etc.

4.—Such services will not as a rule prevent the holder from participating in military drill.

5.—Vacancies as they occur shall be filled by the President of the College and ratified by the Executive Committee of the Board of Trustees.

6.—The holder of an industrial scholarship: (a)—must be more than 15 years of age and of normal size, health and strength; (b)—must be of approved moral character as attested by some well-known resident of his locality; (c)—must be qualified to enter the Freshman Class of the College (See Entrance Requirements, page 120).

7.—The scholarship will be forfeited by persistent indifference to scholastic work or by repeated disregard of the rules of discipline of the College.

8.—The scholarship will be forfeited in case the services required of the holder are not satisfactory to those in charge of the work.

FACILITIES FOR RELIGIOUS WORSHIP.

The College is undenominational in character. The daily exercises of the College include religious worship in the College Chapel.

Students are encouraged to attend the church of their choice on Sunday mornings. There is an Episcopal church at College Park; and at Berwyn, one mile north, and at Riverdale, one mile south, are Presbyterian churches. In Hyattsville, two miles south, may be found Catholic, Episcopal, Presbyterian, Baptist and Methodist churches. In the city of Washington are churches of all denominations, and students may attend service in this city on Sunday mornings. Parents are urged to insist upon their sons attending the church of the faith of their parents.

COLLEGE REGULATIONS.

The attention of parents is earnestly called to the following rules in force at this College: The College authorities can succeed in conferring the maximum amount of training upon the student only with and by the active support and earnest co-operation of the parent. The President of the College is always ready and willing to discuss with parent or guardian any failures in a student's record, and correspondence on this subject is always appreciated.

No student will be accepted as a matriculate until the contract card containing the following agreement for matriculation is signed by parent or guardian, and received by the President of the College.

It is understood that the President of the College as the executive of the same, and acting for the Board of Trustees, a party to this contract, *has the right to ask the withdrawal of a student at any time, when in his judgment such withdrawal may be necessary either for the interest of the young man or the institution which he attends. It is further understood that a parent or guardian can at any time withdraw his son or ward, subject to regulations herein set forth.*

A student manifesting indifference to the observance of the rules and regulations of the institution, or wanting in proper attention to the preparation of his work, will be cautioned to improve. Failing to do so his parents, upon notice given by the President, must withdraw their son.

A special pledge to refrain from what is popularly known as *"hazing,"* and taking unfair means in examinations is required of every applicant for entrance, before he will be allowed to matriculate. Parents should impress upon their sons that failure to live up to this pledge is a dishonor which unfits them to be longer students of the College. *"Hazing" is invariably punished by instant dismissal.*

Frequent absences from the College are invariably of great disadvantage to the student, in breaking in upon the continuity of his work and in distracting his mind from the main purpose of his attendance at the institution. Parents are therefore earnestly asked to refrain from granting frequent requests to leave the College.

Students will not be permitted to leave classes to answer telephone calls, unless they are urgent.

Students will not be permitted to make contracts or to sell any article to their associates without the approval of the President.

The College will not be responsible for articles left in the dormitories during vacation, nor for valuables left by students in their rooms at any time. They should be deposited with the College Treasurer, who will place them in the College safe and give a receipt therefor.

RULES ON COLLEGIATE ROUTINE, ENDORSED BY THE FACULTY.

1. A student may not change his course of study unless at the written request of his parent or guardian, and after said request has been endorsed by the head of the course abandoned, and the head of the course requested, and approved by the Committee on Courses.

2. Examinations to make up conditions acquired in any term will be given only on the mornings and afternoons of certain Saturdays in the following term set apart for this purpose, and at such dates as shall be provided for entrance examinations at the beginning of the scholastic year. On these dates students having conditions will be expected to take the examinations as scheduled and will be permitted to do so without the payment of a fee. Should, for any reason, an examination be requested at any other time, a charge of $1.00 will be made for each subject on which the applicant is examined, provided that all such special examinations shall be authorized by the faculty.

3. To attain proficiency a student must make an examination grade of 60 per cent.; also a term average of 70 per cent. In case of failure, upon re-examination a grade of 70 per cent. is required.

4. A credit period is one theoretical or two practical periods per week for one term.

5. A student may not be promoted if conditioned in more than one-fifth of the credit periods required for one year's work, provided that no student may be promoted with more than one condition in any one department.

6. A student may not be promoted if he has any conditions of more than a year outstanding.

7. Any student who uses unfair means in examination will render himself liable to dismissal.

8. A student is subject to an oral examination at any time within ten days after a written examination.

9. An examination paper, containing erasures or showing alterations, may be rejected at the discretion of the Professor in charge, and a new examination ordered.

10. In computing term averages the daily grade is computed at 2, and the examination grade at 1.

11. The yearly averages in all studies is computed by giving each subject a weight according to the mean number of periods per week involved; theoretical periods being given a value of 2, practical periods 1.

12. Senior students must submit subjects for graduating theses prior to February 1st, and all theses for graduation must be completed prior to May 15th.

13. No special courses are permitted save by consent of the Committee on Courses. In case consent is granted for a special course, the certificate awarded attesting work will not have the College seal nor the signature of the Chairman of the Board.

EXPENSES.

SUMMARY. The details concerning the items of expense incurred by a student attending the College will be found in the paragraphs immediately following the tabulated summary. Although the cost of board and lodging for students living outside of the College Dormitories is not given, it should not vary in any marked degree from the amount shown. Extravagance is discouraged, but no attempt is made to stipulate the amount which should be allowed for incidental personal expenses. It is suggested, however, that for members of the lower classes in particular the weekly allowance for spending money at College be no greater than it is at home. Certain fees which do not apply to all students, such as the Diploma fee, have been omitted from the summary.

SUMMARY OF EXPENSES.
(For students entering in September.)

ITEM.	COST.			
	First Term.	Second Term.	Third Term.	Total.
Fixed Charges.....	$18.00	$16.00	$16.00	$50.00
Laboratory Fee*.....	4.00	4.00	4.00	12.00
Damage Fee †.....	5.00	....	....	5.00
	27.00	20.00	20.00	67.00
Uniform (Complete)‡.....	26.50	.....	.....	26.50
	53.50	20.00	20.00	93.50
Board, Lodging and Laundry..	75.00	60.00	55.00	190.00
Total.....	$128.50	$80.00	$75.00	$283.50

*Not charged to students in the Sub-Freshman Class.
†Unexpended portion refunded at end of year.
‡As a rule students do not find it necessary to purchase a complete new outfit each year.

FIXED CHARGES.—Tuition is free. There are, however, the following fixed charges which must be paid by each student:

ITEM.	COST.
Incidentals.—A part payment toward janitor service; heating and lighting recitation and public rooms, laboratories and library; medical attention; etc.....	$30.00
Physical Culture, Gymnasium and Athletics.....	10.00
Book Rental	10.00
Total.....	$50.00

The charges are payable in advance as follows: $18.00 on entrance, $16.00 at the beginning of the second term, and $16.00 at the beginning of the third term.

LABORATORY FEE.—A charge is made against each student in the four year and two year Courses for outfit, material used, and ordinary wear and tear in the courses involving work in the laboratory, shop, or field. As this fee is small and generally covers only in part the actual outlay, no portion of it will be returned. An extra charge will be made for excessive use of material or destruction of apparatus, etc. The total amount of this fee is $12.00 per year or $4.00 per term.

This fee for each term must be paid in advance and no student will be allowed to take a course in the laboratory, shop, or field until it is paid.

DAMAGE OR CAUTION MONEY.—A deposit of $5.00 is required of all students at time of entrance as a guarantee against damage to property. Unused damage money is returned to the student at the end of the year.

UNIFORM.—Instruction in military tactics is prescribed in the "Land Grant" Act of 1862. Students are required to appear in uniform at all military formations. This uniform is made of the best quality of Charlottesville gray cloth. It is furnished, under a special contract, at a very low price. The cost of each article and the total cost is as follows:

ITEM.	COST.
One (1) gray fatigue blouse	$8.50
Two (2) pair gray fatigue trousers	11.00
Two (2) gray shirts	4.00
One (1) gray fatigue cap	1.50
One (1) pair canvas leggins	0.80
One (1) harness leather belt	0.50
One (1) black four-in-hand tie	0.20
Total	$26.50

If the uniform is given careful usage, it will not be necessary to purchase a complete new outfit each year.

Measures for this uniform are taken as soon as the student arrives at the College and fit is guaranteed.

A deposit of at least 25 per cent. for this uniform must be made with the Treasurer when the measure is taken, as no uniforms will be ordered until the money has been deposited for the same. The uniform must be paid for in full before it is delivered. No uniform is paid for until it is approved by the Professor of Military Science and Tactics.

DIPLOMA.—A fee of $5.00 will be collected for each Diploma issued in Course.

CERTIFICATE.—A fee of $3.00 will be collected for each Certificate issued to students who have completed the two-year Course.

DORMITORY, DINING HALL AND LAUNDRY. Students who are assigned rooms in the College Dormitories and board in the College Dining Hall are charged as follows:

ITEM.	COST.
Room and furniture rent	$35.00
Board, $4.00 per week or for College year (36 weeks)*	140.00
Laundry, $0.50 per week or for College year (36 weeks)	15.00
Total	$190.00

*If meals are served during any College recess an extra charge will be made for them.

Payments on this account are to be made as follows: $75.00 on entrance, $60.00 at the beginning of the second term, and $55.00 at the beginning of the third term.

Any student who has not paid for his room, board, and laundry within five (5) days after the date upon which payment is due will be required to give up his room in the dormitory and will be excluded from the dining hall until payment is made.

ADDITIONAL INFORMATION.—A deposit of $10.00 is required of each student desiring to reserve a room in one of the College Dormitories. Room reservations will be made on and after June 1st of each year until all the available rooms are taken. Unless special arrangements are made all reservations will be canceled on the opening day in September. The deposit of $10.00 which normally will be credited to the account of the student, will be forfeited if he fails to report in September. No special room may be reserved, as all of them afford approximately the same comfort

and convenience. An effort is made, however, to comply with the desire of the student making a reservation in so far as the conditions will permit. Other things being equal, old students are given the preference in the assignment of rooms.

Students entering College after November 1st or withdrawing prior to the close of the Scholastic Year will be required to pay for the time they are in attendance during the incomplete term as follows:

The rate of fixed charges is $7.00 per month.

The rate for room, board, and laundry is $25.00 per month.

All other charges are as previously indicated.

Students withdrawing more than two weeks after entrance will be charged for at least one month's attendance.

Students withdrawing less than two weeks after entrance will be charged at the rate of $2.00 per day.

Students rooming outside may obtain board and laundry from the College at the same rates as those living in the College Dormitories.

Day students may get lunch at noon at the lunch counter at nominal prices.

Charges against students are continued until formal withdrawal has been made.

No student will be promoted to another class, and no diploma will be conferred upon, nor any certificate issued to a student who is in arrears in his account with the College.

In cases of illness, requiring a special nurse and medical attention, the expenses must be borne by the student.

Students will be admitted free of cost to membership in College Athletic Association.

All College property in the possession of the individual student, such as his room, furniture, books, apparatus and military equipment, will be charged against him, and the parent or guardian must assume responsibility for its return without abuse to the proper department at the end of each scholastic year, at which time the account will be cancelled. If abused, the cost of replacing or repairing the abused articles must be paid by the parent or guardian.

Damage to College property in public places in the building and on the grounds by the student will be charged to the whole student body, pro rata, unless the offender is known. In such cases, the whole expense of repairing or replacing the damaged property will be charged to the parent or guardian of the offending party. The matriculation of a student is evidence of the acceptance of this regulation.

All students assigned to Dormitories are required to provide themselves with the following articles, to be brought from home or purchased on arrival:

1 pair blankets (for single bed, 3 ft.x6 ft.).
2 pairs sheets (for single bed).
4 pillow cases.
6 towels.
8 table napkins.
1 pillow.
2 clothes bags.
1 broom.
1 dust pan.

ACKNOWLEDGMENTS.

MEDALS.—The authorities of the Institution take this opportunity to express their appreciation of the courtesy of their friends in establishing the following, for competition:

William Pinkney Whyte Medal, for excellence in Oratory, offered by Hon. Isaac Lobe Straus, of Baltimore, Md.

Winfield Scott Schley prize, for excellence in Oratory, offered by B. H. Warner, Esq., of Kensington, Md.

James Douglas Goddard Memorial Medal, to student of Prince George's county making the highest average in studies, offered by his sister, Mrs. Annie K. Goddard James, of Washington, D. C.

A Silver Cup, to the Literary Society winning the inter-Society Debate, offered by Dr. H. J. Patterson, of College Park, Md.

STUDENT ORGANIZATIONS.

Students' clubs for religious, social, literary and athletic purposes are encouraged as a means of creating class and college pride, and developing an *esprit de corps* among the students. Each class has its own organization, in which matters relating to the class are discussed and directed. Officers are elected and the unity of the class preserved. This has been found to be a decided aid to discipline and tends to raise the standard of student honor.

YOUNG MEN'S CHRISTIAN ASSOCIATION.

Much encouraging work has been done by this organization during the past year, and gratifying interest has been shown in the meetings.

OFFICERS.

President, H. B. Derrick.
Vice-President, E. A. Taylor.
Recorder, K. E. Smith.
Treasurer, R. S. Dearstyne.

LITERARY SOCIETIES.

These societies are invaluable adjuncts to college work. Through them a knowledge of parliamentary law is gained, as well as a readiness of expression and activity in thought, qualities particularly valuable to the American citizen.

The literary society work is under the general supervision of the Professor of Public Speaking, who is always ready to advise with the members in matters of parliamentary law and train them in the delivery of their orations and debates.

POE SOCIETY.

President, R. McHenry.
Vice-President, L. E. Bopst.
Secretary, G. M. Merrill.
Treasurer, G. B. Gray.
Critic, E. A. Taylor.

NEW MERCER SOCIETY.

President, K. E. Smith.
Vice-President, W. J. Aitcheson.
Secretary-Treasurer, D. J. Howard.
Critic, J. C. Sterling.

ENGINEERING SOCIETY.

One of the newest and most beneficial additions to M. S. C. A. is the Engineering Society. Organized in September, 1912, it proved an immediate success, gratifying a long-felt and much-needed want on the part of the engineering students. The general object of the Society is the cultivation of a more active interest in engineering work, while its special aim is to give the student the opportunity to discuss the line of work in which he is interested and to become more accustomed to presenting his ideas. Inasmuch as the Society takes in all members of the Senior and Junior Classes in the Civil, Electrical and Mechanical Engineering Courses, a larger opportunity for acquiring technical knowledge outside of one's own course is offered.

The Society meets twice a month. Papers are presented at alternate meetings by Engineers in practice and by the students themselves.

OFFICERS.

President, G. B. D. Gray.
Vice-President, E. R. Hindman.
Secretary-Treasurer, A. V. Williams.

THE LIEBIG CHEMICAL SOCIETY.

The Liebig Chemical Society was organized to satisfy a much-felt need. The object of the Society is to have the various chemical problems of the day, discussed by men who have specialized in the different branches of Chemistry, or by the members themselves. This tends to develop a keener interest in Chemistry, and also to broaden the student along Chemical lines.

Membership in this Society is open to all members of the Sophomore, Junior and Senior Classes, who are specializing in Chemistry.

OFFICERS.

President, K. T. Knode.
Vice-President, J. D. Bowling, Jr.
Secretary-Treasurer, C. G. Donovan.

AGRICULTURAL CLUB.

OFFICERS.

President, W. J. Aitcheson.
Vice-President, P. H. Morris.
Secretary, R. C. Towles.
Treasurer, E. G. Knatz.

ROSSBOURG CLUB.

The social man is a necessity—hence this organization is encouraged and supported by the President and Faculty. The entertainments have been marked by a spirit which emphasizes the wisdom of its organization and justifies its encouragement.

OFFICERS.

President, P. H. Morris.
Vice-President, J. C. Sterling.
Secretary, J. Bradley.
Treasurer, G. B. D. Gray.

REVEILLE.

The "Reveille" is the College annual, edited entirely by the Senior Class. Eighteen editions of the "Reveille" have appeared and each has been characterized by a gratifying improvement in the standard both of originality and expression.

EDITORIAL STAFF.

Editor-in-Chief, R. C. Towles.
Associate Editors, J. C. Sterling, K. Smith, H. A. Reisinger, K. Grace, W. A. Brockwell, R. White, F. G. Lodge.
Business manager, B. A. Ford.
Assistant Business Managers, G. B. D. Gray, E. A. Taylor.
Treasurer, W. J. Aitcheson.

M. S. C. A. WEEKLY.

The "M. S. C. A. Weekly" is the College newspaper, and is published every week during the scholastic year.

EDITORIAL STAFF.

Editor-in-Chief, J. C. Sterling.
Local Editor, H. R. Shoemaker.
Athletic Editor, H. B. Derrick.
Assistant Local Editors, C. H. Fuchs, H. Smith.
Sophomore Editors, G. M. Merrill, F. D. Day, W. K. Grigg.
Cartoonist, K. Smith.
Columnist, H. F. Ungar.
Business Manager, C. G. Donovan.
Assistant Business Managers, G. F. Epply, A. V. Williams.

ATHLETIC ASSOCIATION.

The Athletic Association is an organization composed of the student body, with membership open to the Alumni Association, the Faculty, and Board of Trustees. It is an incorporated body with a governing board of seven. The object of the Association is the promotion of athletics in general, the supervision of all athletic exercises and sports, and the development of athletic and College spirit. The management of the Association is vested in a board of seven, on which are: the Director of Athletics; two members of the Alumni Association (elected at the annual meeting of that body); two members of the Faculty, appointed by the

President of the College, and two members of the student body, elected at an annual meeting of the Athletic Association. The officers of the Association are students. Eligibility of students for membership on teams in intercollegiate competition is determined on a very strict basis in the By-Laws.

OFFICERS.

President, K. Grace.
Secretary, H. Smith.

ATHLETIC COUNCIL.

The Athletic Council, in conjunction with the Student Athletic Association, manages all athletic affairs. It consists of seven members of the Faculty, appointed by the President, and five students, namely, the managers of the football, baseball, track and tennis teams, and the President of the Athletic Association.

THE ORATORICAL ASSOCIATION OF MARYLAND COLLEGES.

The Maryland State College of Agriculture is a member of this Association, which is composed of St. John's College, Washington College, Western Maryland College and Maryland State College of Agriculture. Contests are held annually at these colleges in rotation, and a marked improvement is to be observed as a result of its organization.

BOARD OF PROCTORS.

This Board consists of a limited number of Senior students who have charge of the students in dormitory and on the campus. They adjust all minor matters of discipline, grant temporary leaves of absence, inspect student quarters and are responsible for the general order and physical condition of the dormitories.

PROCTOR STAFF.

Chief Proctor, J. C. Sterling.
Associate Proctors, R. McHenry, G. B. D. Gray, E. A. Taylor.

STUDENTS' CONFERENCE COMMITTEE.

This Committee is composed of a certain number of representatives from each class and a number of the members of the Faculty. The object of this Committee is to establish a definite relationship between the Faculty and the student body.

COUNTY CLUBS.

These Clubs are formed for the purpose of bringing together students from the same County to discuss the affairs of the County. From these Clubs the students acquire valuable knowledge concerning their home County.

THE ALUMNI ASSOCIATION.

An Institution can largely be judged by the character of its Alumni. Their success in life is the Institution's pride. The work of the Alumni of a College is its greatest asset. M. S. C. A. is fortunate in having among its Alumni, men who have attained notable achievements in Agriculture, Engineering and Science. M. S. C. A. Alumni can be found holding prominent positions in all walks of life.

While for many years the Alumni, through their Association, have taken an active interest in the growth and development of the Institution, it is pleasing to state that this interest has been greatly increased during the past two or three years and since the recent great fire at the College, the Association has taken active steps to aid the Board of Trustees and Faculty in the rehabilitation of the College.

One of the cherished hopes of the Association, that of having direct representation on the Board of Trustees, has been attained in the appointment of two members of the Alumni Association, by the Governor of the State, as Trustees of the College. The attainment of this end will naturally greatly increase the enthusiasm and interest of the members of the Association in co-operating more closely than ever with the College authorities in increasing the scope and usefulness of the Institution.

The Alumni Association continues to offer a medal to the debating societies.

The members have also greatly aided in the development of athletics and especially in conducting the joint athletic meets, which were held at the College during the last four years.

The Alumni also co-operate in the publishing of the "M. S. C. A. Weekly."

The officers of the Alumni Association for the present year are: President, R. M. Pindell, '89; Vice-President, F. P. Veitch, '91; Secretary-Treasurer, W. M. Hillegeist, '12; Executive Committee, members at large, W. W. Skinner, '95; W. D. Graff, '00; Alumni Athletic Board, Wellstood White, '05; J. P. Grason, '09.

Graduates and members of the Association are requested to keep the Secretary-Treasurer, W. M. Hillegeist, College Park, Md., informed of any change in address. Any information concerning the older graduates which will enable the officers to locate and communicate with them will facilitate their efforts and will tend to further the success of the Association.

DEGREES CONFERRED JUNE 16th, 1915.

Honorary.

MASTER OF SCIENCE IN HORTICULTURE.

THOMAS H. WHITE, COLLEGE PARK, MD.

MASTER IN MECHANICAL ENGINEERING.

HOWARD L. CRISP, COLLEGE PARK, MD.

In Course.

ELECTRICAL ENGINEER.

WALTER A. FURST, BALTIMORE, MD.

BACHELOR OF SCIENCE.

AGRICULTURAL EDUCATION.

PINCKNEY ALBERT HAUVER, FREDERICK COUNTY, MD.

AGRICULTURE.

LEONIDAS D. ANDRIOPOULOS, WASHINGTON, D. C.
RUDOLPH STOCKDALE BROWN, WASHINGTON COUNTY, MD.
CHRISTIAN HOWARD BUCHWALD, BALTIMORE, MD.
OSCAR GEORGE CARPENTER, CALVERT COUNTY, MD.
J. HARRY KNODE, WASHINGTON COUNTY, MD.
MICHAEL LEVIN, BALTIMORE, MD.
A. B. XEROCOSTAS, ERIE, PA.

HORTICULTURE.

THOMAS DAVIS GRAY, CHARLES COUNTY, MD.
R. J. MCCUTCHEON, FREDERICK COUNTY, MD.
EDGAR W. MONTELL, BALTIMORE COUNTY, MD.
RALPH PHELPS WEST, WASHINGTON, D. C.

BIOLOGY.

MAX KISLIUK, JR., WASHINGTON, D. C.

CHEMISTRY.

GLENN SPEELMAN FRAZEE, ALLEGANY COUNTY, MD.
ARTHUR MCCORD GIBSON, BALTIMORE, MD.
WILLIAM EUGENE HALL, BALTIMORE, MD.
PHILIP NORMAN PETER, MONTGOMERY COUNTY, MD.
HENRY A. RASMUSSEN, BALTIMORE, MD.
MARTIN EMANUEL ROHN, BALTIMORE, MD.
JOHN JAMES TULL, SOMERSET COUNTY, MD.

CIVIL ENGINEERING.

JOSEPH PAUL BLUNDON, PRINCE GEORGE COUNTY, MD.
J. EDWIN BOWLAND, SOMERSET COUNTY, MD.
WILLIAM ROUSE KELLY, BALTIMORE, MD.
WILLIAM TURNER PERKINS, PRINCE GEORGE COUNTY, MD.
EVERETT HUMES PIERSON, WASHINGTON, D. C.
CHARLES EDWARD ROBINSON, FRANKTOWN, VA.
EDGAR MCCORMICK ROBERTS, PHILADELPHIA, PA.

ELECTRICAL ENGINEERING.

ADRIAN ROLAND CARTER, ANNE ARUNDEL COUNTY, MD.
HEDLEY ARTHUR CLARK, BALTIMORE COUNTY, MD.
WILLIAM EMMITT HARRISON, BALTIMORE COUNTY, MD.
ROBERT NAIRNE TODD, WICOMICO COUNTY, MD.

MECHANICAL ENGINEERING.

CHARLES THOMAS COCKEY, BALTIMORE COUNTY, MD.
RICHARD DALE, SOMERSET COUNTY, MD.
AUGUSTINE HERMAN MASSEY, KENT COUNTY, MD.
LEE ROBERTS PENNINGTON, HARFORD COUNTY, MD.
VICTOR POWER PENNINGTON, KENT COUNTY, MD.
FREDERICK WILLIAM WRIGHT, MONTGOMERY COUNTY, MD.

CERTIFICATES IN THE TWO-YEAR COURSE IN AGRICULTURE.

PERCIVAL HAMAR BEAVERS, RICHMOND, VA.
DOUGLAS GILPIN, MONTGOMERY COUNTY, MD.
HEINRICH WILHELM HEERMAN, WESTFALEN, GERMANY.
WILLIAM EDWARD JARRELL, CAROLINE COUNTY, MD.
MARTIN JOSEPH LALLY, MORRISTOWN, N. J.
TUFTON BENTLEY MASON, ACCOTINK, VA.
NICHOLAS SNOWDEN STABLER, MONTGOMERY COUNTY, MD.

Testimonials of Merit Awarded June 16, 1915.

For distinguished achievement in the promotion of the agricultural interests of Maryland:

ORLANDO HARRISON, WORCESTER COUNTY, MD.
For his efforts in promoting Horticulture.

HENRY H. PIERSON, JR., TALBOT COUNTY, MD.
For his efforts in promoting Animal Industry.

JOHN H. DRURY, CALVERT COUNTY, MD.
For his efforts in promoting Tobacco Industry.

Medals and Prizes Awarded June 16, 1915.

For excellence in the Agricultural Education Course; offered by the College:

P. A. HAUVER, FREDERICK COUNTY, MD.

For excellence in the Animal Husbandry Course; offered by the College:

J. H. KNODE, WASHINGTON COUNTY, MD.

For excellence in the Horticultural Course; offered by the College:

E. W. MONTELL, BALTIMORE COUNTY, MD.

Honorable Mention.

R. J. MCCUTCHEON, FREDERICK COUNTY, MD.

For excellence in the Chemical Course; offered by the College:

P. N. PETER, MONTGOMERY COUNTY, MD.

Honorable Mention.

W. E. HALL, BALTIMORE, MD.

For excellence in the Electrical Engineering Course; offered by the College:

W. E. HARRISON, BALTIMORE COUNTY, MD.

For excellence in the Mechanical Engineering Course; offered by the College:

F. W. WRIGHT, MONTGOMERY COUNTY, MD.

For excellence in the Two-Year Course in Agriculture; offered by the College:

N. S. STABLER, MONTGOMERY COUNTY, MD.

Honorable Mention.

T. B. MASON, ACCOTINK, VA.

For excellence in Debate; offered by the Alumni Association:

RALPH MCHENRY, FREDERICK COUNTY, MD.

The Goddard Medal, for excellence in Scholarship and moral Character; offered by Mrs. Annie K. Goddard James:

ROBERT WHITE, PRINCE GEORGE COUNTY, MD.

The William Pinkney Whyte Medal, for excellence in Oratory; offered by Isaac Lobe Straus, Esq.:

J. C. STERLING, SOMERSET COUNTY, MD.

CADET BATTALION ORGANIZATION.

BATTALION STAFF.

F. J. McKenna.....Major.
J. B. Gray.....First Lieutenant and Adjutant.
J. Bradley.....Second Lieutenant and Quartermaster.
B. F. Senart.....Sergeant Major.

BAND OFFICERS AND NON-COMMISSIONED OFFICERS.

J. B. Gray.....Adjutant, Commanding.
L. C. Wilson.....Second Lieutenant and Chief Musician.
H. Smith.....Drum Major.
L. Burritt.....Sergeant.
J. Donnett.....Sergeant.
C. H. Fuchs.....Sergeant.
A. H. Sellman.....Sergeant.
P. E. Clark.....Corporal.
P. Barton.....Corporal.

COMPANY OFFICERS AND NON-COMMISSIONED OFFICERS.

Company "A."	Company "B."	Company "C."
CAPTAINS.		
R. McHenry.	R. H. Morris.	K. E. Smith.
FIRST LIEUTENANTS.		
L. E. Bopst.	E. A. Taylor.	W. Aitcheson.
SECOND LIEUTENANTS.		
W. McLean.	J. F. Sunstone.	R. White.
FIRST SERGEANTS.		
J. A. Bromley.	H. H. Balkam.	G. M. Sturgis.
QUARTERMASTER SERGEANTS.		
I. Coggins.	F. A. Korff.	H. W. Fristoe.
SERGEANTS.		
H. B. Derrick.	J. E. Mills.	R. D. Watson.
C. G. Donovan.	W. D. Gray.	A. V. Williams.
W. Kishpaugh.	W. A. Gemeny.	D. J. Howard.
CORPORALS.		
L. M. Childs.	F. B. Rakemann.	C. H. Bacon.
E. B. McKinley.	M. A. Thorne.	F. M. Haig.
W. P. Williams.	M. A. Pyle.	C. S. Elliott.
P. V. Horn.	C. J. Fuhrman.	M. D. Engle.
B. S. Tongue.	E. L. Wilde.	H. Ward.
G. F. Eppley.	W. H. Carrol.	R. France.
FIELD MUSICIANS.		
C. E. Johnson.	A. D. Etienne.	J. E. Dingman.
J. Stevens.	F. J. Frere.	J. A. Gray.

ROSTER OF MATRICULATES.

SESSION 1915-16.

NAME.	POST OFFICE.	COUNTY.
	GRADUATE STUDENTS.	
ALLEN, H. H.,	Baltimore,	*Baltimore City.*
ANSPON, B. W.,	College Park,	Prince George.
DRAKE, HARLEY B.,	Washington,	*District of Columbia.*
GRAHAM, J. J. T.,	Hyattsville,	Prince George.
HAYMAN, E. T.,	Baltimore,	*Baltimore City.*
LINHARDT, C. L.	Baltimore,	*Baltimore City.*
MONROE, J. F.,	Snow Hill,	Worcester.
SHAW, S. B.,	College Park,	Prince George.
	SENIOR CLASS.	
AITCHESON, W. J.,	Burtonsville,	Montgomery.
BAINS, R. S.,	Washington,	*District of Columbia.*
BOPST, L. E.,	Frederick,	Frederick.
BOWLING, J. D., JR.,	Upper Marlboro,	Prince George.
BRADLEY, J.,	Lonaconing,	Allegany.
BROCKWELL, W. A.,	Washington,	*District of Columbia.*
BURLINGAME, L. E.,	Washington,	*District of Columbia.*
DAY, S. E.,	Baltimore,	*Baltimore City.*
ERDMAN, L. E.,	Baltimore,	*Baltimore City.*
FORD, B. A.,	Baltimore,	*Baltimore City.*
GRACE, K.,	Easton,	Talbot.
GRAY, G. B. D.,	Prince Frederick,	Calvert.
GRIFFIN, S. E.,	Highland,	Howard.
HINDMAN, E. R.,	Port Deposit,	Cecil.
KNODE, K. T.,	Martinsburg,	*West Virginia.*
KNATZ, E. G.,	Owings Mills,	Baltimore.
LODGE, F. G.,	McConnellsburg,	*Pennsylvania.*
MCHENRY, R.,	Frederick,	Frederick.
MCKENNA, F. J.,	Woonsocket,	*Rhode Island.*
MCLEAN, W.,	Baltimore,	*Baltimore City.*
MORRIS, P. H.,	Faulkner,	Charles.
REISINGER, J. A.,	Rockville,	Montgomery.
SANDO, C. E.,	Washington,	*District of Columbia.*
SMITH, K. E.,	Washington,	*District of Columbia.*
STEINMETZ, F. J.,	Baltimore,	*Baltimore City.*
STERLING, J. C.,	Crisfield,	Somerset.
SUNSTONE, J. T.,	Baltimore,	*Baltimore City.*
TAYLOR, E. A.,	Stockton,	Worcester.
TOWLES, R. C.,	College Park,	Prince George.
WHITE, R.,	College Park,	Prince George.
WILSON, L. C.,	Nottingham,	*Pennsylvania.*

NAME.	POST OFFICE.	COUNTY.
JUNIOR CLASS.		
BALKAM, H. H.,	Washington,	*District of Columbia.*
BROMLEY, J. A.,	Stockton,	Worcester.
BURRITT, L.,	Washington,	*District of Columbia.*
COGGINS, I.,	Washington,	*District of Columbia.*
DEARSTYNE, R. S.,	Port Chester,	*New York.*
DERRICK, H. B.,	Takoma Park,	Montgomery.
DONNET, J.,	Baltimore,	*Baltimore City.*
DONOVAN, C. G.,	Washington,	*District of Columbia.*
DUBEL, B.,	Baltimore,	*Baltimore City.*
FRISTOE, H. W.,	Baltimore,	*Baltimore City.*
FUCHS, C. H.,	Port Chester,	*New York.*
GEMENY, W. A.,	Bozman,	Talbot.
GILPIN, W. F.,	Lanham,	Prince George.
GRAY, W. D.,	Prince Frederick,	Calvert.
HASLUP, L. H.,	Annapolis Junction,	Howard.
HOWARD, D. J.,	Brookeville,	Montgomery.
KISHPAUGH, W. M.,	Harrisburg,	*Pennsylvania.*
KORFF, F. A.,	Baltimore,	*Baltimore City.*
LARSEN, C. L.,	Long Island,	*New York.*
NASH, P. M.,	Washington,	*District of Columbia.*
OBERLIN, L. D.,	Silver Spring,	Montgomery.
RUFF, S. W.,	Roslyn,	Baltimore.
SELLMAN, A. H.,	Washington,	*District of Columbia.*
SENART, B. F.,	Washington,	*District of Columbia.*
SHOEMAKER, H. R.,	Ashton,	Montgomery.
SMITH, H.,	Arlington,	Baltimore.
STURGIS, G. M.,	Hyattsville,	Prince George.
TARBUTTON, C. C.,	Crumpton,	Queen Anne.
THOMSEN, F. L.,	Hyattsville,	Prince George.
WATSON, R. D.,	Welcome,	Charles.
WILLIAMS, A. V.,	Nanticoke,	Wicomico.
WINANT, H. B.,	Washington,	*District of Columbia.*
SOPHOMORE CLASS.		
ARTHUR, R. W.,	Havre de Grace,	Harford.
BACON, C. H.,	Silver Spring,	Montgomery.
BARRETT, W. D.,	Baltimore,	*Baltimore City.*
BARTON, P.,	Washington,	*District of Columbia.*
BOONE, A. W.,	Philadelphia,	*Pennsylvania.*
BRIMER, F. C.,	Stockton,	Worcester.
CARROLL, W. H.,	Baltimore,	*Baltimore City.*
CHILDS, L. M.,	Highland,	Howard.
CLARK, P. E.,	La Plata,	Charles.
CONRAD, R. C.,	Winston-Salem,	*North Carolina.*
COPPAGE, H. S.,	Church Hill,	Queen Anne.
CUTLER, W. V.,	Washington,	*District of Columbia.*
DAVISON, B.,	Washington,	*District of Columbia.*
DAY, F. D.,	Boyds,	Montgomery.
DIETERICH, J. F., Jr.,	Baltimore,	*Baltimore City.*
DONOVAN, T. J.,	Beverly Farms,	*Massachusetts.*

NAME.	POST OFFICE.	COUNTY.
ELLIOTT, C. S.,	Hebron,	Wicomico.
ENGLE, M. D.,	Forest Glen,	Montgomery.
EPPLEY, G. F.,	Washington,	*District of Columbia.*
EYRE, R. S.,	Highland,	Howard.
EZEKIEL, M. J. B.,	Hyattsville,	Prince George.
FRANCE, R.,	Washington,	*District of Columbia.*
FREUNDLICH, H.,	Baltimore,	*Baltimore City.*
FUHRMAN, C. J.,	Brentwood,	Prince George.
GATES, H. B.,	Takoma Park,	Montgomery.
GILMOUR, L. J.,	Ogdensburg,	*New York.*
GRIGG, W. K.,	Port Chester,	*New York.*
HAIG, F. M.,	Riverdale,	Prince George.
HART, DEW. C.,	Riverdale,	Prince George.
HORN, P. V.,	Mt. Airy,	Carroll.
JONES, J. P.,	Davidsonville,	Anne Arundel.
KANN, R. S.,	Pittsburg,	*Pennsylvania.*
LONDON, O.,	New York,	*New York City.*
MCCOMAS, J. P.,	White Hall,	Baltimore.
MCKINLEY, E. B.,	Washington,	*District of Columbia.*
MANTZ, F. MCL.,	York,	*Pennsylvania.*
MERRILL, G. M.,	Crisfield,	Somerset.
POSEY, W. B.,	Anacostia,	*District of Columbia.*
PYLE, M. A.,	Baltimore,	*Baltimore City.*
QUINN, D. L.,	Crisfield,	Somerset.
RAKEMANN, F. B.,	Washington,	*District of Columbia.*
REMSBURG, J. E.,	Middletown,	Frederick.
RICH, M. N.,	Washington,	*District of Columbia.*
SANDO, W. J.,	Washington,	*District of Columbia.*
SIMPSON, E. O.,	Chance,	Somerset.
STUNTZ, R. G.,	Washington,	*District of Columbia.*
TERNENT, S. S.,	Lonaconing,	Allegany.
THORNE, M. A.,	Lanham,	Prince George.
TONGUE, B. S.,	Baltimore,	*Baltimore City.*
WEIGAND, P. E.,	Baltimore,	*Baltimore City.*
WILDE, E. L.,	Washington,	*District of Columbia.*
WILLIAMS, W. P.,	Doncaster,	Charles.

FRESHMAN CLASS.

AITCHESON, J. L.,	Burtonsville,	Montgomery.
AMIGO, J.,	Havana,	*Cuba.*
AXT, R. W.,	Baltimore,	*Baltimore City.*
BABCOCK, K. W.,	Hagerstown,	Washington.
BEACHAM, P. S.,	Westminster,	Carroll.
BERLIN, H.,	Baltimore,	*Baltimore City.*
BERRY, M. H.,	Upper Marlboro,	Prince George.
BLETSCH, C. F.,	Riverdale,	Prince George.
BOLGIANO, J. W.,	Towson,	Baltimore.
BRIMER, W. E.,	Snow Hill,	Worcester.
BROOKS, A. J.,	Port Chester,	*New York.*
BROWN, M. C.,	Baltimore,	*Baltimore City.*
BRYAN, A. W.,	Perth Amboy,	*New Jersey.*
BUELL, A. C.,	Washington,	*District of Columbia.*
BURNSIDE, B. L.,	Hyattsville,	Prince George.

NAME.	POST OFFICE.	COUNTY.
CHEN, C. C.,	Shanghai,	*China.*
CHICHESTER, F. S.,	Aquasco,	Prince George.
CHICHESTER, P. W.,	Aquasco,	Prince George.
CHIPMAN, J.,	Baltimore,	*Baltimore City.*
CLARK, G. S.,	Ellicott City,	Howard.
CLARK, J. B.,	Ellicott City,	Howard.
CLENDANIEL, G. W.,	Kennedyville,	Kent.
COCKEY, J. D.,	Lillington,	*North Carolina.*
COLE. K. C.,	Port Chester,	*New York.*
CONOVER, G. I.,	Port Chester,	*New York.*
CONYNGTON, J.	Washington,	*District of Columbia.*
CRUM, P. E.,	Harmony Grove,	Frederick.
DAWSON, F. A.,	Washington,	*District of Columbia.*
DORSEY, THOS. R.,	Mt. Rainier,	Prince George.
DOWIN, T. V.,	Williamsport,	Washington.
DRAWBAUGH, J. R.,	Washington,	*District of Columbia.*
DUNLAP, HELEN E.,	Wilmington,	*Delaware.*
DUVALL, W. H.,	Croome,	Prince George.
ETIENNE, A. D.,	Berwyn,	Prince George.
FARREN, E. E.,	Washington,	*District of Columbia.*
GLEASON, R. W.,	Washington,	*District of Columbia.*
GUTBERLET, I. W.,	Baltimore,	*Baltimore City.*
HAIG, R. V.,	Riverdale,	Prince George.
HAND, E. W.,	Berwyn,	Prince George.
HARDISTY, W. R.,	Seabrook,	Prince George.
HARP, D. R.,	Dayton,	Howard.
HART, R. G.,	Chicago,	*Illinois.*
HARVEY, E.,	Washington,	*District of Columbia.*
HICKS, W. P.,	Baltimore,	*Baltimore City.*
HILL, G. M.,	Port Chester,	*New York.*
HIPPLE, B. G., Jr.,	Marietta,	*Pennsylvania.*
HUNT, C., Jr.,	Washington,	*District of Columbia.*
JOHNSON, C. E.,	Brooklyn,	*New York.*
KEEFAUVER, J. E.,	Berwyn,	Prince George.
LATIMER, T. M.,	Hyattsville,	Prince George.
LAWSON, M. A.,	Crisfield,	Somerset.
LEWIS, R. R.,	Frederick,	Frederick.
McLEAN, D. L.,	Baltimore,	*Baltimore City.*
MEASDAY, W., Jr.,	Brooklyn,	*New York.*
MESS, R. W.,	Chevy Chase,	Montgomery.
MILLER, A. A.,	College Park,	Prince George.
MILLER, E. V.,	Hagerstown,	Washington.
MONTELL, H. G.,	Catonsville,	Baltimore.
MONTGOMERY, T.,	Riverdale,	Prince George.
MORNHINWEG, W. F., Jr.,	Port Chester,	*New York.*
MORTON, M. C.,	McConnellsburg,	*Pennsylvania.*
MURRELL, A. A.,	Baltimore,	*Baltimore City.*
NORRIS, G. W.,	Baltimore,	*Baltimore City.*
PAINE, C. E.,	Washington,	*District of Columbia.*
PERKINS, H. T.,	Springfield,	Prince George.
PERRIE, A. L.,	College Park,	Prince George.
PETTIT, G. E.,	Alexandria,	*Virginia.*
POSEY, K. C.,	La Plata,	Charles.
PRATT, A. N.,	Hackensack,	*New Jersey.*

NAME.	POST OFFICE.	COUNTY.
REID, E. N.,	Welbourne,	Worcester.
RICHMOND, J. M.,	Baltimore,	*Baltimore City.*
ROCKLIN, H. L.,	Baltimore,	*Baltimore City.*
ROYER, W. E.,	Washington,	*District of Columbia.*
RUST, A. D.,	Lanham,	Prince George.
SAWYER, E. M.,	Manila,	*Philippine Islands.*
SCHEIN, L. L.,	New York,	*New York City.*
SELLMAN, R. L.,	Beltsville,	Prince George.
SEWELL, M. D.,	Hyattsville,	Prince George.
SHUMATE, J. O.,	Washington,	*District of Columbia.*
SIEGERT, L. L., Jr.,	Galloways,	Anne Arundel.
SMITH, C. R.,	Baltimore,	*Baltimore City.*
SMITH, J. E.,	Galloways,	Anne Arundel.
SNYDER, H. E.,	Keedysville,	Washington.
SPEIDEL, F. C.,	Washington,	*District of Columbia.*
STACKHOUSE, W. R.,	Bridgeton,	*New Jersey.*
STARR, J. H.,	Westover,	Somerset.
STURGIS, H. L.,	Hyattsville,	Prince George.
UNGAR, H. F.,	New York,	*New York City.*
VANDERMAST, G. H,.	Baltimore,	*Baltimore City.*
VAN SCHAICK, F. E.,	Washington,	*District of Columbia.*
VINCENT, J. M.,	Hyattsville,	Prince George.
WALLOP, J. D.,	Princess Anne,	Somerset.
WARREN, F. E.,	Washington,	*District of Columbia.*
WEST, E. G.,	Washington,	*District of Columbia.*
WHITE, R. G.,	Oakland,	Garrett.
WILKERSON, D. C.,	Washington,	*District of Columbia.*
ZVERINA, F.,	Washington,	*District of Columbia.*

SUB-FRESHMAN CLASS.

ABBOTT, C. W.,	Baltimore,	*Baltimore City.*
AMIGO, A.,	Havana,	*Cuba.*
AMIGO, F.,	Havana,	*Cuba.*
BAURMAN, W. M.,	Washington,	*District of Columbia.*
BEAVERS, P. H.,	Richmond,	*Virginia.*
BENSON, H. J.,	Lanham,	Prince George.
BONNEVILLE, C. S.,	Snow Hill,	Worcester.
BOWLING, E. N.,	Upper Marlboro,	Prince George.
BROOKS, J. W.,	Madison,	Dorchester.
CLAGETT, J. H., Jr.,	Roslyn,	Baltimore.
COMPTON, R. K., Jr.,	Baltimore,	*Baltimore City.*
CONEY, W. B., Jr.,	Baltimore,	*Baltimore City.*
COX, R. C.,	Huntingtown,	Calvert.
DIGGS, A. C.,	Baltimore,	*Baltimore City.*
DINGMAN, J. E.,	Berwyn,	Prince George.
DRUCKERMAN, B.,	New York,	*New York City.*
EZEKIEL, W. N.,	Hyattsville,	Prince George.
FRERE, F. J.,	Tompkinsville,	Charles.
FRERE, T. A.,	Tompkinsville,	Charles.
GONZALES, J. S.,	Bulacan,	*Philippine Islands.*
GOODWIN, L. M.,	Brier Hill,	*New York.*
GRAY, J. A.,	Brownsville,	Washington.
GRIMM, W. H.,	Stanley,	*Virginia.*

NAME.	POST OFFICE.	COUNTY.
HALLAM, H.,	Baltimore,	*Baltimore City.*
HANCE, C. W.,	Mutual,	Calvert.
HEMPSTONE, W. D.,	Leesburg,	*Virginia.*
HOUSTON, T. T.,	Washington,	*District of Columbia.*
JOHNSON, J.,	Baltimore,	*Baltimore City.*
KNODE, J. S.,	Martinsburg,	*West Virginia.*
KNODE, R. T.,	Martinsburg,	*West Virginia.*
KRETSCHMAN, G. W.,	Elmira,	*New York.*
LAMBDIN, F. F.,	Annapolis,	Anne Arundel.
LANGRALL, J. H.,	Baltimore,	*Baltimore City.*
MALLERY, J. P.,	Lanham,	Prince George.
MATTHEWS, W. B.,	La Plata,	Charles.
MOORE, H. W.,	Denison,	*Texas.*
PYLE, C. T.,	Baltimore,	*Baltimore City.*
RANKIN, E. J.,	Rockville,	Montgomery.
RIGGS, M. T.,	Rockville,	Montgomery.
SMITH, H. L.,	Riverdale,	Prince George.
STRANGE, R. F.,	Annapolis,	Anne Arundel.
THORNTON, M. S.,	Crisfield,	Somerset.
TILGHMAN, S. P.,	Crisfield,	Somerset.
WENDELL, G. A.,	Baltimore,	*Baltimore City.*
WRIGHT, C. W.,	Cumberland,	Allegany.

SECOND YEAR AGRICULTURAL.

BEALL, S. W.,	Beltsville,	Prince George.
BINGHAM, L.,	Washington,	*District of Columbia.*
BOURNE, T. B.,	Baltimore,	*Baltimore City.*
BROWN, J. P.,	Centreville,	Queen Anne.
CLEMENTS, G.,	Millington,	Kent.
MCDONALD, H. M.,	Barton,	Allegany.
RUHL, C. C.,	Baltimore,	*Baltimore City.*
THOMPSON, E. W.,	Washington,	*District of Columbia.*
TREVVETTE, A. S.,	Richmond,	*Virginia.*
WARD, H. B.,	Baltimore,	*Baltimore City.*

SECOND YEAR HORTICULTURAL.

HUNGERFORD, R. A.,	Marshall Hall,	Charles.
LAPHAM, E. W.,	Goldsboro,	Caroline.
MILLS, J. E.,	Hyattsville,	Prince George.
TALIAFERRO, J. E.,	Ware Neck,	*Virginia.*
VAN HORN, J. W.,	Chicago,	*Illinois.*

FIRST YEAR AGRICULTURAL AND HORTICULTURAL.

BARRETT, A. J.,	Rome,	*Italy.*
BEAEL, O. L.,	Beltsville,	Prince George.
BECKER, J. F.,	Washington,	*District of Columbia.*
BIBLE, H. F.,	Flintstone,	Allegany.
BOYD, A. J.,	Washington,	*District of Columbia.*
BOYER, R.,	Washington,	*District of Columbia.*
DANIELS, M. B.,	Hyattsville,	Prince George.
DAVIS, G. S.,	Staunton,	*Virginia.*

NAME.	POST OFFICE.	COUNTY.
FRAZEE, W. L.,	Old Town,	Allegany.
FULTON, J.,	Stewartstown,	*Pennsylvania.*
HARVEY, M. L.,	Lanham,	Prince George.
HOLLIDAY, K. B.,	Norfolk,	*Virginia.*
HOPKINS, O. W.,	Salisbury,	Wicomico.
McCORMICK, J. M.,	Bel Air,	Harford.
McPHERSON, R. D.,	Easton,	Talbot.
MANNING, R. L.,	Accokeek,	Prince George.
NICHOLS, W. E.,	Hinton,	*West Virginia.*
PYWELL, E.,	College Park,	Prince George.
STEVENS, J. W.,	Baltimore,	*Baltimore City.*
SWARTZ, J. M.,	Baltimore,	*Baltimore City.*
TRAIL, O.,	Easton,	Talbot.
TUTTLE, A. E.,	Rye,	*New York.*
WALSON, C. F.,	Washington,	*District of Columbia.*
WASNEY, J. S., Jr.,	Washington,	*District of Columbia.*
WAYBRIGHT, E. J.,	Littlestown,	*Pennsylvania.*
WILLSON, F. F.,	Silver Spring,	Montgomery.

UNCLASSIFIED.

GISRIEL, J. L.,	Baltimore,	*Baltimore City.*
HARRISON, H. L.,	Berlin,	Worcester.
HELMAN, C. E.,	Lurgan,	*Pennsylvania.*
HILLEGEIST, W. M.,	College Park,	Prince George.
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SUMMARY OF STUDENTS.

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1. Prof. Benjamin Hallowell,	President	of	the	Faculty..1859—1860
2. Rev. J. W. Scott,	"	"	"	..1860—1860
3. Prof. Colby,	"	"	"	..1860—1861
4. Prof. Henry Onderdonk,	"	"	"	..1861—1864
5. Prof. N. B. Worthington,	"	"	"	..1864—1867
6. Prof. C. L. C. Minor,	President	of	the	College..1867—1868
7. Admiral Franklin Buchanan,	"	"	"	..1868—1869
8. Prof. Samuel Regester,	"	"	"	..1869—1873
9. General Samuel Jones,	"	"	"	..1873—1875
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15. Thos. H. Spence, M. A., Acting	"	"	"	..1912—1913
16. H. J. Patterson, Sc. D.,	"	"	"	..1913—....

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